

**Models for Medicare Payment System Reform Based on
Group-Specific Volume Performance Standards (GVPS)**

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Table of Contents

| | | |
|--------------|---|-----------|
| I. | Purpose | 1 |
| II. | Overview of the Project and Report | 2 |
| | A. The Project | 2 |
| | B. The Report | 3 |
| III. | Policy Context and Alternatives | 4 |
| | A. State Level MVPS | 5 |
| | B. HMO Risk Contracting | 6 |
| | C. Penalize High Cost Hospital Medical Staffs | 6 |
| IV. | Rationale and Goals for GVPS | 7 |
| | A. Rationale | 7 |
| | B. Goals for HCFA and Providers | 8 |
| V. | Summary of Basic GVPS Models | 9 |
| | A. The Policy Context: MVPS | 9 |
| | B. Methods to Monitor Volume Performance | 10 |
| | C. Rewards and Penalties | 12 |
| VI. | Utilization Measures | 15 |
| | A. The Basic Measure: RPUPS | 15 |
| | B. Scope of Service | 15 |
| | C. Illustrative Findings | 16 |
| VII. | Setting Performance Standards or Targets | 19 |
| | A. Scope of Services | 19 |
| | B. Differential Growth Rates Based on Location | 22 |
| | C. Provider Level Versus Market Level Changes | 25 |
| | D. Cumulative Versus Year-to-Year Targets | 29 |
| VIII. | Rewards and Penalties | 35 |
| | A. Policy Questions and Objectives | 35 |
| | B. Options for Rewards and Penalties | 35 |
| | C. Reward and Penalty Formulas | 38 |
| | D. Transaction Mechanisms | 42 |
| | E. Possible Implications | 44 |
| IX. | Eligibility Criteria for GVPS | 45 |
| | A. Linking to Purposes | 45 |
| | B. Basic Eligibility Criteria | 46 |
| | C. Criteria for Managed Care and Preferred Provider Initiatives | 48 |

| | | |
|-------------|--|-----------|
| X. | Provider Responses to GVPS | 51 |
| A. | Deciding Whether to Elect GVPS | 52 |
| 1. | Meeting Eligibility Criteria | 52 |
| 2. | Service Categories for RPUPS | 53 |
| 3. | Reward and Penalty Structure | 53 |
| B. | Action Plan | 53 |
| 1. | Increasing Market Share | 59 |
| 2. | Managing Cost and Utilization | 60 |
| a. | Within the Organization | 60 |
| b. | Outside the Organization | 61 |
| 3. | Care Management Strategies | 62 |
| C. | Managing Performance | 63 |
| 1. | Management Control | 63 |
| a. | Practice Guidelines | 63 |
| b. | Feedback Mechanisms | 63 |
| c. | Compensation Systems | 64 |
| 2. | Evaluating Performance | 64 |
| a. | RPUPS | 64 |
| b. | Patient Capture Ratio | 64 |
| c. | Services Provided | 65 |
| XI. | Simulations of Medicare Expenditures and Rewards to Groups Under GVPS | 65 |
| A. | Analytic Framework | 65 |
| 1. | Defining Financial Impact | 65 |
| 2. | Time Horizon | 66 |
| 3. | Relevant Services | 66 |
| 4. | Defining a Base Case | 66 |
| B. | Assumptions | 66 |
| 1. | Assumptions About the Medicare Environment | 66 |
| 2. | Assumptions about the GVPS Policy Design | 68 |
| 3. | Assumptions About Providers Under a GVPS Program | 69 |
| 4. | Summary: The Base Case Scenario | 71 |
| C. | Findings | 72 |
| 1. | Results | 72 |
| 2. | Sensitivity to Policy Parameters | 75 |
| 3. | Sensitivity to Other Assumptions | 75 |
| D. | Discussion of Simulation Results | 78 |
| XII. | Conclusions and Recommendations | 79 |
| | References | 82 |
| | Appendix A: Consultations with Multispecialty Groups | A-1 |
| | Appendix B: Data | B-1 |
| | Appendix C: Alternative Model Specifications | C-1 |

Executive Summary

1. Purpose

This report discusses potential policy options for Medicare based on Group-Specific Volume Performance Standards (GVPS). We developed a basic model and analyzed several variations with the following fundamental objectives:

- ▶ To study alternatives to the current system of Medicare Volume Performance Standards (MVPS) that would allow qualified physician groups to elect separate performance standards; and more generally,
- ▶ To explore ways for HCFA to control the rate of increase in the volume and intensity of services delivered to Medicare beneficiaries.

The proposed models could give providers financial incentives to manage the services delivered to their Medicare patients, and reduce Medicare spending for *all* covered services, not just physician and supplier services.

Under MVPS, fee updates for all physicians can be reduced if annual volume performance standards (national expenditure targets for physician and supplier services) are not met. There are at least three problems with the mandatory national groupings:

- ▶ Physicians have weak economic incentives to be efficient because individual performance is aggregated with the rest of the nation.
- ▶ If national standards are exceeded, physicians who *are* relatively efficient get penalized *as if* their own performance were average.
- ▶ Over many years, shrinking Medicare payment levels relative to other payers may threaten beneficiaries' access to physician services.

When MVPS was enacted, Congress acknowledged that refinements to the basic approach could be warranted, and specifically called for development of group-specific performance standards. This report discusses models that would allow HCFA to monitor and reward physician organizations separately from the national experience. Furthermore, incentives can be expanded to include efficient management of all Medicare-covered services. Given its general applicability, this approach may have advantages over other policies such as capitation. Whereas Medicare has not achieved savings from HMO enrollment because of favorable selection, Medicare cannot lose money on GVPS but would share savings generated by efficient providers. In addition, GVPS would encourage the most efficient physician groups to serve the most expensive Medicare beneficiaries.

2. Goals for GVPS

An option for a group to elect separate performance standards presumably would require a sufficient overlap between the interests and goals of Medicare and “qualified” physician groups. This overlap is likely to be greatest with physician organizations that can be relatively efficient and that provide high quality care.

Specifically, we see the following goals for Medicare and GVPS:

- ▶ **Achieve and maintain high quality health care.** Attempts to cut costs can run a risk of compromising quality and access. Medicare beneficiaries should receive services that equal or exceed prevailing quality standards in the local community.
- ▶ **Improve clinical efficiency.** For each beneficiary, the combination of services results in the lowest cost necessary to meet the quality standards. This means avoidance of unnecessary referrals, tests, and services.
- ▶ **Improve market efficiency.** This is multifaceted:
 - Relatively efficient providers are rewarded and increase their market share;
 - Inefficient providers bear the brunt of fee reductions or other penalties;
 - Providers generally become more efficient in response to the market dynamics, or lose market share.
- ▶ **Achieve budget neutrality.** Implementation of GVPS does not lead to higher aggregate Medicare expenditure levels.

Providers electing to participate under GVPS may not all have the same objectives or priorities. However, participation might help them achieve particular goals:

- ▶ **Compensation for clinical efficiency.** Savings attributable to clinical efficiency could be shared with participating providers.
- ▶ **Greater market share.** This may be achieved by increasing the number of patients served and/or the scope of services provided.
- ▶ **Support for new strategic orientations.** Market pressures for efficiency create new challenges and new opportunities for providers. GVPS could promote strategic orientations that include, but go beyond Medicare.

In summary, GVPS could enhance equity in payment and create incentives for groups to manage the care of their patients. Many providers are seeking ways to defend or increase their market share by efficiently managing the volume and intensity of services. GVPS could reinforce these initiatives and encourage similar efficiencies for Medicare patients. Efficient providers that meet target growth rates would be rewarded. Meanwhile, the burden of financial penalties would be more concentrated on physicians who have not demonstrated acceptable rates of increase.

3. Basic Methodological Approach

The empirical work in this study is based on two sets of providers. First, we worked with a dozen physician groups located in different parts of the country. Physicians and other managers at the groups have contributed to the development of workable models for GVPS. In addition, we gathered Medicare claims data for patients seen by these groups in order to analyze resource consumption at the provider level. Groups were defined at the corporate level using the Provider Tax Number, which encompasses all relevant physicians and their billing numbers.

A second set of 66 providers was selected from the three-digit ZIP Code areas that account for at least 5 percent of Medicare patients seen by each of the original groups. In all, 78 providers were included in the analyses. For each provider, we obtained all National Claims History file records for 1991, 1992 and 1993 for all beneficiaries seen during that period. The average number of beneficiaries seen in 1992 by the 78 providers was about 15,000. In addition, we obtained similar data for random beneficiary samples drawn from the same market areas, in order to determine market level reimbursement rates and trends over time. Each provider typically saw only a small fraction of all users in the entire market area (i.e., less than 10 percent).

From these data, we were able to measure average utilization for all Medicare patients seen by a provider during each of the observation years. Utilization was measured as reimbursements per patient. Changes in this measure at the provider level were compared to changes at the market level. Comparisons were made with and without adjustments for changes in health status.

4. GVPS Models

GVPS models would supplement and refine the national MVPS, which focuses on *rates of increase* rather than absolute expenditure levels. This is consistent with the policy goal of achieving sustainable growth rates in Medicare spending. Proposed GVPS models emulate the focus on growth rates, which could encourage participation by providers with relatively sick patients and/or elaborate practice styles.

GVPS models must depart from some aspects of the current MVPS approach. First, national expenditures are measured *in total*, with adjustments for changes in the Medicare

population size. At the provider level, it is more valid and convenient to measure performance *on average* for patients seen. Second, current performance standards are set nationally and reflect average performance not only across providers but also across market areas. Valid performance standards for providers need to reflect local market conditions, not expectations averaged across all market areas in the country. Third, the case mix of patients seen by a provider can change over time and performance standards should account for such changes. HCFA has experience with these issues through its capitation payment system, and we borrow from some methods already used by HCFA. Finally, GVPS could encourage physicians to manage *all* Medicare services for their patients. Thus, the policy could embody a vision for physicians to manage their patients, not just their own practices or only professional and supplier services.

a. The Measure of Utilization: RPUPS

We measure average resource consumption at the provider level by Reimbursements Per Unique Patient Seen (RPUPS). In the denominator of this ratio are the Medicare beneficiaries who receive physician services from the group during the calendar year. Although beneficiaries may be informed about GVPS, we presume there would not be an enrollment requirement. In the numerator are Medicare reimbursements to *all* providers seen by these beneficiaries during the calendar year, for the services included in the measure. Two scopes of service are contemplated for the GVPS option: those services currently under MVPS, and all Medicare-covered services. In either case, providers are reimbursed for services according to all of the applicable prevailing payment policies, including the Medicare Fee Schedule for physician services, the hospital Prospective Payment System, etc.

The values of RPUPS range widely among providers. For the 78 providers in this analysis, the proportion of all Medicare reimbursements in 1992 that were for physician and supplier services averaged 25 percent of the total for all Medicare services used by their patients, and ranged from 15 to 39 percent. For patients seen by a particular provider, the share of all reimbursements for physician and supplier services that went to that provider averaged 18 percent, and ranged from 2.9 percent to 52.9 percent. We call this the Patient Capture Ratio (PCR).

b. The Performance Standards

GVPS would compare resource consumption in a given year to a target level or performance standard that is derived from resource consumption levels (i.e., RPUPS) for a base year, multiplied by a specified percentage rate of increase. Targets could be set on a year-to-year basis, using the most recent observed RPUPS as a base. However, this has two disadvantages. First, groups would have difficulty realizing substantial savings if performance standards were "ratcheted down" each year on the basis of earlier successes. Second, groups may have incentives to generate excessive utilization in some years alternating with years of lower utilization and apparent but artificial "savings." Preferably, targets could be updated

cumulatively from the level of RPUPS observed in a specified base year, without regard to intermediate values of RPUPS. This would allow groups to benefit from implementing systems that continue to keep utilization rates lower, similar to Medicare capitation payments to HMOs. We explore methods to adjust for differences in a provider's case mix between the base year and performance year.

Rates of growth varied among market areas. Between 1991 and 1993, rates of growth in total Medicare reimbursements per patient (unadjusted for case mix) ranged from 6 percent to 24 percent. For physician and supplier services, rates of growth ranged from minus 1.2 percent to 8 percent. Differences across markets are an issue confronted by HCFA in setting payment rates for all providers, including HMO risk contractors. We propose methods similar to HCFA's geographic adjustment for capitation payment rates, which are based on the beneficiary's county of residence.

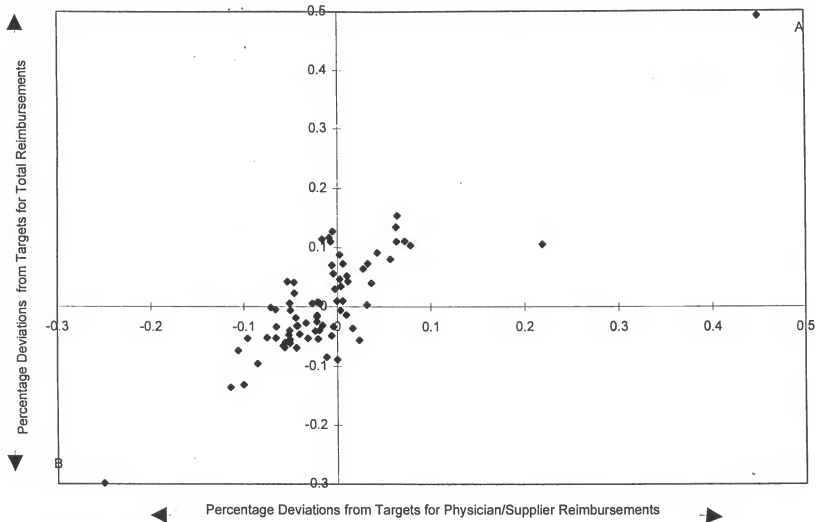
Figure ES-1 shows how rates of growth at the provider level compare to rates at the respective market level. The origin of the axes represents a perfect prediction at the provider level, based on changes at the market level. The horizontal axis shows deviations from the target when RPUPS is defined to include physician and supplier services only; the vertical axis shows deviations from the target when RPUPS is defined to include all Medicare services. Thus, points that are toward the left, and toward the bottom of the figure, are providers with lower rates of increase.

We interpret the substantial clustering of points within 10 percent of the market prediction to indicate a strong tendency for RPUPS to be stable at the provider level. For the most part, points outside the cluster (such as Points A and B) are providers that experienced very large changes in the number of beneficiaries seen during these years (e.g., a 50 percent change). We regard these instances as neither data nor policy problems. Rather, they indicate that groups will need to inform HCFA about changes in their composition over time (e.g., mergers and divestitures). When measuring performance, HCFA can account for these transitions by adjusting baseline levels or performance standards.

c. Rewards and Penalties

If the observed RPUPS in a performance year is less than the target, the rate of growth in average resource consumption is lower than the rate specified by the Federal government. Differences between expected and actual reimbursement rates for a provider's patients are deemed to be savings attributable to changes in relative efficiency. Multiplying by the number of Medicare patients involved in measuring the average reimbursements per patient produces an estimate of total Medicare Savings due to changes in the provider's relative efficiency. If RPUPS refers to professional and supplier services only (i.e., MVPS services), the estimated Medicare Savings will refer only to those services. RPUPS also could encompass all Medicare-covered services, and savings would be estimated accordingly.

Figure ES-1: Deviations from Targets for 78 Providers in 10 Market Areas: 1991 to 1992



Source: NCH file, 1991 and 1992.

If the value of Medicare Savings is positive, the group has demonstrated improvement in relative efficiency. If the value is negative, the group has not met HCFA's budget goals. A value of zero means the group has met its target exactly; in other words, the group has met HCFA's budget goals for the average provider. These outcomes can be addressed in the payment system through policies that define rewards and penalties.

In the proposed GVPS models, HCFA would retain its policy of setting uniform conversion factors for all physicians. The GVPS payment system would distinguish between physician groups in terms of relative efficiency by giving *lump sum* reward payments to successful groups. At a minimum, the reward would be based on the actuarial value of any national fee penalties. HCFA could "refund" the value of lost revenues resulting from the national penalties to groups that operated within their targets. In addition, GVPS could result in rewards based on savings to Medicare and/or specific penalties for failing to meet performance standards. Penalty amounts could be withheld from future fee-for-service payments to the group.

The value of additional rewards (and penalties) could be a function of several potential factors, beginning with the estimated Medicare Savings. We recommend that Medicare Savings be calculated on the basis of all Medicare services, not just physician and supplier services. It would be desirable and appropriate for Medicare to retain a portion of the savings. For reasons of equity and appropriate incentives, the physician group also could receive a portion of the savings, i.e., a reward. Because incentives and savings apply to reimbursements to *all* providers, one gauge for reward payments to the group is its PCR, i.e., the proportion of Medicare reimbursements for services provided to its patient population. The result would be "virtual capitation" to the group for its share of the patient population. Groups would have incentives to maximize savings and to increase their share of services provided to their patients. HCFA may choose other criteria for sharing savings (such as a specified Sharing Rate) instead of, or in addition to the Patient Capture Ratio. We recommend that rewards be equal to a refund of the lost revenues due to reduced fee updates under MVPS, plus 75 percent of the product of the estimated savings and the group's PCR.

Paying rewards for the success of groups raises questions about financing and budget neutrality. For savings and rewards related to MVPS services, HCFA still could use the national MVPS to calculate universal penalties. In those calculations, the Medicare Savings amount (for MVPS services) attributed to groups operating under GVPS could be added to the national aggregate expenditure totals. This would base national penalties on the performance of providers outside of GVPS. Providers under GVPS would receive the same conversion factors, reflecting the penalties, but the difference would be offset by the lump sum payments.

For other types of services (i.e., not covered under MVPS), the Federal government also has processes for determining increases in payment rates. The context for making those determinations presumably includes budget considerations, although there is no structure that is

parallel to MVPS. HCFA may implicitly disregard estimated savings under GVPS when it makes these determinations, effectively creating a parallel situation in which the burden of financial penalties is concentrated on providers outside the umbrella of managed care under GVPS.

d. Three Prototype Models

Table ES-1 presents three model variations for GVPS. These three models are presented to illustrate important policy parameters regarding the scope of services and the incentive structure. Model 1 uses only professional and supplier services in the definitions of RPUPS and Medicare Savings, while Models 2 and 3 refer to all Medicare-covered services. Models 1 and 2 carry reward potential only, with no specific penalties for failing to meet performance standards, whereas Model 3 carries potential rewards and penalties. We recommend Model 2 because we want to encourage participation by groups, and want to encourage the groups to manage total patient care.

The formulas given in Table ES-1 for reward and penalty amounts are illustrative. In each of the models, the formulas refer to the entire scope of services used to define RPUPS. A model that includes provisions for specific penalties might share greater proportions of savings with the group. However, the formula for rewards and penalties need not be entirely symmetric. Furthermore, HCFA may decide to avoid or strictly limit the potential penalties, given the absence of patient “lock-in” provisions to control utilization. Model 1 would give rewards to groups equal to any refunds for reduced fee updates plus (Medicare Savings \times Patient Capture Ratio \times 0.75). As discussed above, multiplying by the PCR provides a useful estimate of the reimbursements that might have been paid to the group, had they not improved overall efficiency. The Sharing Rate of 0.75 represents a compromise between zero, which reflects traditional fee-for-service, and unity, which conveys a “virtual capitation” scenario.

Model 2 would base reward payments on all Medicare-covered services, with amounts equal to any refunds for reduced fee updates plus (Medicare Savings \times Patient Capture Ratio \times 0.75). Model 3 carries higher potential rewards, equal to any refunds for reduced fee updates plus (Medicare Savings \times Patient Capture Ratio \times 0.95), and would account for negative Medicare Savings estimates through a penalty equal to (Medicare “Losses” \times Patient Capture Ratio \times 0.10). This would move toward a virtual capitation approach.

5. Eligibility Criteria

To a certain extent, criteria for eligibility depend on the purposes of GVPS. For basic purposes, such as enhancing equity in payment or applying incentives for efficiency as broadly as possible, HCFA may specify only a few criteria. These could include requiring formal contractual agreements among providers that operate under a single performance standard, specifying minimum sizes (e.g., number of beneficiaries served). We suggest criteria such as a minimum of 8,000 Medicare patients seen per year, a minimum PCR of 20 percent (for physician

Table ES-1: Summary of Three Model Variations

| | Model 1 | Model 2 | Model 3 |
|------------------------------|------------------------------|-------------------------------|-------------------------------|
| Services in Volume Measure: | MVPS | All Medicare | All Medicare |
| Formula for Sharing Savings: | | | |
| MVPS: | $(MS \times PCR \times 0.5)$ | $(MS \times PCR \times 0.75)$ | $(MS \times PCR \times 0.95)$ |
| Other: | None | $(MS \times PCR \times 0.75)$ | $(MS \times PCR \times 0.95)$ |
| Formula for Penalties: | | | |
| MVPS: | None | None | $(MS \times PCR \times 0.10)$ |
| Other: | None | None | $(MS \times PCR \times 0.10)$ |

MVPS services include most Part B professional and supplier services, and exclude outpatient department facility costs, ambulance services and durable medical equipment.

MS refers to the estimated Savings for the group; PCR is the Patient Capture Ratio, which is the proportion of all patients' Medicare reimbursements that were to the group.

services), and minimum Medicare reimbursements of \$100,000 per year for evaluation and management physician services.

HCFA may consider more restrictive criteria for two reasons. First, HCFA may want to limit the number of participants. This could lessen the overall administrative burden and concentrate resources on larger and more propitious sites. HCFA could undertake a definitive assessment of a group's capacity to manage the full range of Medicare-covered services. This may require several layers of criteria relating to the composition of the group, accessibility standards, quality of care standards, patient management practices, and information systems.

6. Provider Responses

If the Federal government made GVPS available, providers across the country would need to make a number of decisions in response. First, they could assess their interest and their ability to meet eligibility criteria. Most would have to pool their efforts with other providers in order to meet criteria relating to size and/or scope of services.

Operating under GVPS, a group may make different decisions depending on characteristics of its patient population. For example, a group that focuses on primary care may have to ally itself with providers of more specialized care. A group that already provides a full range of services and a large portion of care to its patients may focus on managing the services it provides and expanding the number of Medicare patients it sees. Under the proposed models, groups would have incentives to control the volume and intensity of their own services, and to influence the services their own patients receive from other providers.

7. Economic Consequences of GVPS

We simulate the economic consequences of implementing GVPS on three parties: Medicare, GVPS groups, and other physician practices. Economic consequences result from changes in total Medicare reimbursements for applicable services, plus any reward payments. The simulation model concerns the specific effects of GVPS on reimbursements for all Medicare services (Parts A and B) over a time frame of five years.

Table ES-2 presents results of the simulation for the base case scenario, and contrasts them with projected results in the absence of GVPS. We assume that GVPS groups see 10 percent of all beneficiaries that use services, realize lower utilization rates, and experience a slower than average rate of growth. Under GVPS, participating groups lose \$1.988 billion in reimbursements in year 5 (12.92% of what they would have received without GVPS). This loss is more than offset by a reward of \$2.509 billion for their success in meeting targets. With the reward, the groups are 3.38 percent better off with GVPS than without. The non-GVPS providers also face lower reimbursements under GVPS, but the losses are spread over a much larger base, and therefore only account for 2.73 percent of their year 5 reimbursements without GVPS. Finally, Medicare saves 2.44 percent of total reimbursements for year 5 with GVPS (\$7.709 billion), since higher payments to groups under GVPS are more than offset by lower payments to other providers.

Table ES-2

Distribution of payments with/without GVPS
Scenario: GVPS Base Case*

| Payments (\$M) in Year 5 | Scenario | | Difference (% change) with GVPS |
|--------------------------------------|----------|---------|---------------------------------|
| | GVPS | No GVPS | |
| Reimbursements to GVPS groups | 13,403 | 15,391 | -1,988 (-12.92) |
| Reward payments to GVPS groups | 2,509 | 0 | +2,509 |
| Total group income | 15,912 | 15,391 | +521 (+3.38) |
| Reimbursements to non-GVPS providers | 292,887 | 301,116 | -8,230 (-2.73) |
| Total payments by Medicare | 308,798 | 316,507 | -7,709 (-2.44) |

* GVPS groups see 10% of beneficiaries that use services in every year

Table ES-3 examines the sensitivity of our results to various changes in the policy parameters. It may be seen that increasing the sharing rule from 75 percent to 95 percent reduces slightly the total payments by Medicare in year 5. However, it increases the groups' gain from implementation of GVPS, from 3.38 percent to 7.18 percent above their reimbursement total without GVPS.

Of greater importance is the rebasing rule. The use of annual rebasing would make GVPS a money-loser for the groups, reducing their revenues 9.64 percent below the GVPS base case fifth year amount of \$15.912 billion. This reflects the ratchet effect of continually adjusting targets based on actual performance. However, the groups' loss in this case is not a gain for Medicare. Instead, the benefits accrue to non-GVPS providers, who receive higher updates (and therefore smaller revenue losses) than they would otherwise. This is because rebasing reduces measured savings, and therefore reduces the rewards to GVPS groups which would otherwise be financed through lower updates.

If the groups reduced their volume growth to 4.5 percent instead of 6.5 percent used in the base case, they would increase their income in year 5 by 1.67 percent of the level the groups would receive if there were no GVPS. The income gain is smaller than the 3.38 percent achieved in the GVPS base case scenario. This suggests that the additional rewards for curbing utilization more tightly are ultimately outweighed by the loss of fee-for-service reimbursements. Using the 4.5 percent growth assumption, Medicare would save 2.93 percent of year 5 payments without GVPS, compared to 2.44 percent savings in the GVPS base case with 6.5 percent utilization growth.

Alternatively, if the GVPS groups increased their PCR by 2 percent per year in addition to achieving the baseline utilization savings for Medicare, they would greatly increase their fee-for-service reimbursements. In this scenario variation, the groups' revenues in year 5 would be 29.3 percent higher than without GVPS. For Medicare, this scenario results in a 0.09 percentage point larger payment reduction than the GVPS base case because care is being transferred from non-GVPS to GVPS group providers, who are presumed to better control utilization growth. Furthermore, if groups see 25 percent of beneficiaries, Medicare payments in year 5 are approximately \$19.8 billion below their projected level with no GVPS program. This represents a 6.38 percent savings for Medicare.

8. Conclusions and Recommendations

Medicare has experienced large increases in spending during recent years, and most projections suggest these increases could continue. Policymakers have debated the merits of regulation, such as rate setting, versus market-oriented solutions, such as managed care. We believe that the regulatory framework established for MVPS is useful for achieving budgetary goals. However, we also believe it would be useful to supplement the current system with economic incentives that encourage the management of services. Many physicians and administrators who contributed to this study commented that incentives under the traditional fee-

Table ES-3

Effect of Varying Program Impacts on Payments Under GVPS
 GVPS Groups see 10% of Beneficiaries that Use Services

| | Varying Assumptions | | | | Payments (\$M) in Year 5 | | | Percent Change from No GVPS | | |
|-------------------------|---------------------------------|----------------------------|--------------------------|----------------------------------|--------------------------|-----------|---------|-----------------------------|--------|-------|
| Scenario | Groups' Utilization Growth Rate | Annual Increase in Capture | Groups' Share of Savings | Annually Rebase Groups' Targets? | To Groups | To Others | Total | Groups | Others | Total |
| No GVPS | -- | -- | -- | -- | 15,391 | 301,116 | 316,507 | -- | -- | -- |
| GVPS Base Case | 6.5% | 0 | 75% | No | 15,912 | 292,887 | 308,798 | +3.38 | -2.73 | -2.44 |
| Variants | | | | | | | | | | |
| Vary Savings Share | 6.5% | 0 | 95% | No | 16,497 | 291,401 | 307,898 | +7.18 | -3.23 | -2.72 |
| Vary Rebasing Rule | 6.5% | 0 | 75% | Yes | 13,907 | 296,665 | 310,572 | -9.64 | -1.48 | -1.88 |
| Vary Utilization Growth | 4.5% | 0 | 75% | No | 15,648 | 291,570 | 307,218 | +1.67 | -3.17 | -2.93 |
| Vary Capture Growth | 6.5% | 2% | 75% | No | 19,900 | 288,593 | 308,494 | +29.30 | -4.16 | -2.53 |

for-service payment system—with or without MVPS—were out of step with their current efforts to manage care and improve efficiency.

Managing services may result in lower utilization rates and large savings, but bringing beneficiaries into managed care environments can be difficult. Medicare risk contracts with HMOs offer one opportunity. Capitation can create incentives for efficiency that encourage managed care. However, continuing participation by an HMO is largely contingent on positive financial results. In turn, enrollment by Medicare beneficiaries into an HMO is contingent on better benefits and/or lower premiums than competing Medicare supplemental policies. The current system pays HMOs 95 percent of estimated costs and therefore could save Medicare up to 5 percent for enrollees. Unfortunately, Medicare saves less than 5 percent, or even loses money, in cases where the average cost estimates are too high because of favorable selection.

We hypothesize that Medicare could achieve greater savings from GVPS than from the capitation system:

- ▶ First, the chances of Medicare *losing* money are less under GVPS because the performance standards are based on the experience of the group. In contrast, capitation embodies “performance standards” that may have little correspondence to actual enrollees. Although there is always error associated with estimating expected costs, the experience of a group’s own patients may be a more valid basis than the experience of other providers’ patients.
- ▶ Second, the financial benefits of managing care can be shared more evenly under GVPS. The formulas for sharing the savings can give ample incentives and rewards to groups, yet still allow Medicare to benefit substantially. Under capitation, any savings to Medicare are capped at 5 percent of mean reimbursement levels. Under GVPS, Medicare can keep the majority of savings for patients seen by most groups.
- ▶ Third, under GVPS groups have incentives to serve and manage expensive Medicare patients. Providers paid under fee-for-service are encouraged to seek and retain patients most in need of services. Capitated health plans have incentives to seek and retain relatively healthy *members*, not patients.

We also see advantages of GVPS over state-level MVPS and penalizing hospital medical staffs:

- ▶ Our analysis suggests that increases in Medicare costs are more pronounced for Part A and other non-MVPS services. It would seem worthwhile to pursue *comprehensive* policies that embrace all services. Under GVPS, HCFA can follow reforms in the industry and encourage management of all services. Policies addressing MVPS services within states, or physician services within the hospital, are relatively narrow and not aimed at the major problem areas or most promising solutions.

- ▶ Also worthwhile would be *coherent* policies that link appropriate incentives to the responsible decision-makers. We believe physician groups are the optimal focal points for comprehensive and coherent Medicare payment policies. Based on what we found, there are physician groups willing to accept the challenge.
- ▶ In different ways, state-level MVPS and hospital medical staff policy options are *subsets* of potentially more comprehensive GVPS policies. Setting regional or local performance standards is one necessary step in establishing a GVPS option, which completes the process by giving incentives to providers to respond. Hospital medical staffs are potential candidates for GVPS, which could give them incentives to manage ambulatory and institutional services.

HCFA has several parameters to consider for GVPS, involving various tradeoffs. A significant decision is whether to stay with the scope of physician and supplier services. Other decisions have to do with the level of complexity to build into the algorithms for setting standards and measuring performance. Also, decisions are needed about the appropriate balance between incentives to participate, and incentives for efficiency among those who participate.

- ▶ HCFA has the administrative capacity and relevant data to implement GVPS for physician and supplier services, or for all Medicare services. Most of the administrative burden lies with the physician services because of their large numbers. Ironically, adding the other categories of services increases the administrative burden relatively little, but greatly increases the scope of the incentives and potential savings. We recommend basing GVPS on all services. For non-MVPS services, projections used in setting capitation rates for HMOs could also be used to set performance standards for groups.
- ▶ There are a number of potential refinements and variations discussed in this report. Again, they would involve data and capacity that HCFA already has, but would add to the number of steps. The value of methods to dampen stochastic effects must be considered in light of selected criteria for participation. Allowing medium sized groups to participate, for example, may add to the value of refinements. We recommend that health status adjusters be employed, but further consideration is needed about which categories to use.
- ▶ Groups should be given incentives for improving efficiency. These incentives could be in the form of rewards and/or penalties. Although penalties may strengthen incentives for efficiency, we believe that interest in participation would be greatly reduced by the prospect of losing money. Assuming that HCFA is willing to set cumulative performance standards, we recommend that concentrated penalties not be included. Failure to capitalize on an opportunity to manage care and earn rewards is itself a sufficient penalty, as is rising above a cumulative target and diminishing chances for future rewards. Giving

positive incentives similar to capitation, and allowing HCFA to share in the savings, could reap significant benefits for Medicare and participating groups.

Based on these considerations, we recommend that HCFA consider models with parameters such as the following:

- ▶ Establish eligibility criteria, such as groups with primary care physicians and specialists serving about 8,000 or more beneficiaries per year, and a PCR of at least 20 percent for physician services.
- ▶ For GVPS beginning within the next year, say early in 1996, choose 1994 as the base year.
- ▶ Measure utilization as RPUPS based on all Medicare services.
- ▶ Establish performance standards using the counties where at least 5 percent of the group's patients reside. These are cumulative, meaning annual increases are applied to the previous target, not the most recent actual RPUPS. Adjust the performance standard each year for changes in case mix from the base year.
- ▶ Pay successful groups a lump sum reward consisting of a refund for revenues lost from national fee penalties, plus 75 percent of the product of estimated Medicare Savings times the PCR. Pay rewards to a group for successful performance only if its cumulative Medicare savings, i.e., since beginning to operate under GVPS, are positive.
- ▶ Penalize unsuccessful groups only through any applicable national fee penalties.

I. Purpose

The Health Care Financing Administration (HCFA) has periodically reformed Medicare's payment systems to help control costs. Price setting systems for hospital and physician services are notable examples. However, to control aggregate expenditures HCFA also must control the volume and intensity of services. Many payers have adopted managed care techniques including utilization management, selective provider contracting, and financial incentives. The policy options presented in this report could help propel the Medicare program into managed care and toward long run cost control.

In 1989, the Federal government initiated physician payment reform with legislation calling for the Medicare Fee Schedule (MFS) based on a Resource-Based Relative Value Scale (RBRVS). To address volume and intensity, the legislation established the Medicare Volume Performance Standard Rates of Increase (MVPS), which link physician fee updates to aggregate national Medicare expenditure outcomes for physician and supplier services. This research is intended to help HCFA explore alternatives to the current national MVPS, responding to three basic problems:

- ▶ **Physicians have weak economic incentives to be efficient because individual performance is aggregated with the rest of the nation.**

HCFA partitions services into separate volume performance standards for surgical, primary care and other services. However, Medicare-covered services delivered by all physicians in the country are aggregated into national pools. This approach gives weak financial incentives for providers to manage the volume and intensity of services because individual performance does not affect discernibly the national performance.

- ▶ **If national standards are exceeded, physicians who *are* relatively efficient get penalized *as if* their own performance was average.**

In spite of the weak incentives under Medicare, some physicians practice more efficiently than others. This can result from differences in education, organization of practice, incentives given by other payers, etc. Medicare expenditure levels reflect the combined or average behavior of the relatively efficient and inefficient physicians. Blanket fee penalties do not differentiate between physicians in terms of their relative efficiency.

- ▶ **Over many years, shrinking Medicare payment levels relative to other payers may threaten beneficiaries' access to physician services.**

If the main mechanism for expenditure control is reducing physicians' Medicare fee levels, physicians may become less willing to accept Medicare patients. This unfortunate dynamic may occur without causing any general improvements in the cost-effectiveness

of service delivery patterns. Physicians' fees account for a distinct minority of total Medicare expenditures, but physicians make the decisions that affect most of the remaining services.

This report discusses refinements to the national MVPS to allow qualified physician groups to elect separate annual performance standard rates of increase other than the national standard established for the year. Under the proposed models, called Group-Specific Volume Performance Standards (GVPS), HCFA would track the annual reimbursement rates of Medicare beneficiaries seen by physician groups. The observed rates of increase would be compared to performance standards to determine whether or not the group was contributing to lower growth rates in Medicare spending.

This approach could encourage physicians to elect group-specific performance standard rates of increase and give incentives for improvements in efficiency. Moreover, incentives under GVPS can be expanded to all Medicare-covered services. Accordingly, physicians can be rewarded for managing all of their Medicare patients' services.

II. Overview of the Project and Report

A. The Project

This is the final report for a three-year project intended to advise HCFA about separate performance standards for physician groups. The project has set out to:

- ▶ Develop and analyze methods for measuring resource consumption at the provider level and for setting group-specific performance standards,
- ▶ Develop and recommend criteria for determining whether a physician group is qualified to elect separate performance standards,
- ▶ Consider the administrative requirements for HCFA to implement group-specific volume performance standards,
- ▶ Describe how a physician group may operate under separate performance standards, and
- ▶ Simulate policy implications of important model parameters.

We have continued to develop conceptual models described in reports from previous projects sponsored by HCFA (Wallack et al., 1991; Tompkins et al., 1992). In the earlier work, we conducted empirical analyses of Medicare expenditure patterns for quasi-random samples of physician providers, using the Provider ID Number (i.e., billing number) to define providers.

For this project we combined many aspects of the model development and empirical analyses. We established an informal advisory committee consisting of representatives from a dozen physician organizations in different areas of the country. Through periodic meetings, conference calls and written correspondence these groups gave us useful reactions and insights throughout much of the project. In addition, we constructed data samples using these groups as main sites and other providers in the same market areas as additional observations in our secondary data analyses.

The advisory committee included large multispecialty groups with reputations for delivering high quality of care and having strong management capability aimed at integration. The organizations that assisted us are:

- Cleveland Clinic Foundation (Cleveland, OH)
- Fallon Clinic (Worcester, Massachusetts)
- Geisinger Clinic (Danville, PA)
- Henry Ford Health System (Detroit, MI)
- Lahey Clinic Foundation (Burlington, Massachusetts)
- Lovelace Clinic (Albuquerque, NM)
- Mayo Foundation (Rochester, MN; Scottsdale, AZ; Jacksonville, FL)
- Ochsner Clinic (New Orleans, LA)
- Scott & White Clinic (Temple, TX)
- Upper Hudson Primary Care Consortium (Warrensburg, NY)

Together, these organizations serve urban and rural market areas, and range in emphasis from primary care to national tertiary care referrals. Many also sponsor or contract with health maintenance organizations, including Medicare risk contractors.

Our data samples were supplemented with other physician organizations chosen from the same market areas served by the advisory committee members. The Medicare National Claims History (NCH) file was our principal source of data. We retrieved claims records for all Medicare patients seen by providers in the sample during the years 1991, 1992 and 1993. In addition, we obtained similar data for random beneficiary samples from the same market areas in order to estimate market level trends.

B. The Report

The first part of this report presents the purpose and aims of the study, and provides some background about the policy context for GVPS. **Section III** of this report briefly describes some other policy options to control expenditure levels. These include other potential refinements to the national MVPS, and HMO risk contracting. **Section IV** discusses the rationale and goals for a policy of Group-Specific Volume Performance Standards. These include objectives for HCFA and objectives that may exist for qualified providers.

The second part of the report discusses GVPS models for implementing performance standards at the group level. Also included are models for defining incentive structures based on the group's performance. **Section V** summarizes the basic approach to GVPS, and introduces key terms and relationships. The section describes main model variations together with related policy issues. **Section VI** describes methods for measuring resource consumption at the provider level. Empirical findings are presented for the sample providers. We consider the set of services currently under MVPS (i.e., professional and supplier services) and all Medicare-covered services. **Section VII** describes methods for setting performance standards. We investigate differences in growth rates between market areas, and growth rates at the provider level. Model options include year-to-year targets and cumulative targets projected from a specific base year. **Section VIII** considers specific changes to the payment system under GVPS that could affect the incentive structure for providers. As an alternative to the national MVPS, this approach could help to improve equity in payments and to encourage efficiency in service delivery. We consider the potential roles of economic rewards and penalties.

The third part of the report discusses eligibility criteria for participation under GVPS, potential provider responses to GVPS, and results from simulations of the economic consequences of GVPS. **Section IX** discusses criteria that HCFA may consider for assessing the qualifications of physician groups and their eligibility for participation under separate performance standards. We begin with basic criteria relating to the validity of utilization measures and performance standards, and then discuss further criteria related to potential policy goals of HCFA for GVPS. **Section X** anticipates how providers may respond if GVPS were implemented. Groups must consider whether to elect a separate performance standard and, if so, how to manage for success. **Section XI** presents the simulation results, comparing economic outcomes for Medicare, for successful groups within GVPS, and for physicians who are not operating under separate performance standards. Results from this first generation simulation model are intended to help facilitate discussion about further research and the implications of particular policy choices. **Section XII** contains conclusions and recommendations for GVPS models.

The report also contains several appendices. **Appendix A** provides further information about the physician groups comprising our advisory committee. **Appendix B** describes the construction and handling of data files used for the empirical research tasks. **Appendix C** describes potential refinements of the utilization measures and performance standards presented in this report.

III. Policy Context and Alternatives

This project describes the policy of GVPS, perhaps one of several policies HCFA may consider in addressing the following general problems faced by the Medicare program:

- ▶ **Increasing costs.** A fundamental problem is the rising cost of financing Medicare-covered services.
- ▶ **Incentives to provide more services.** Expenditure increases are driven in part by prevailing fee-for-service incentives for providers to deliver more services than may be necessary.
- ▶ **Potential threats to access and quality.** Policies designed to control costs can lead to concerns about reductions in quality of care, access to needed services, and the liberty to choose among providers.

This section briefly reviews three other policy alternatives against which HCFA may weigh the relative merits of GVPS: state level MVPS, HMO risk contracting, and focusing on the volume and intensity of services delivered by hospital medical staffs.

A. State Level MVPS

An alternative to the national MVPS would be to mandate geographic groupings of physicians, such as a region or state (Holahan and Zuckerman, 1993; PPRC, 1990, 1992). There are at least two potential benefits of moving in this direction. First, there are observable differences between market areas in expenditure growth rates. Measuring the volume performance of different states separately could give greater relevance to the target for providers than average national rates. Second, states may develop infrastructures as part of health reform efforts that create the ability to monitor and/or enforce changes in practice patterns at more local levels.

There are caveats and limitations associated with this policy proposal. Absent the development of infrastructures under more elaborate health care reforms, states or regions are not likely to have mechanisms to monitor or cause changes in physicians' practice patterns.¹ Also relevant to this approach is the issue of patients crossing state borders to receive services. Finally, applying reduced fee updates for failure to meet performance standards could create price differentials across state borders: physicians in successful states would trend toward higher Medicare payment rates and beneficiary copayment rates than physicians in unsuccessful states.

¹ Physicians also may be differentiated by specialty. Specialty societies currently exert some "soft" influence on their members, especially regarding issues of clinical appropriateness. Extending this influence to counteract economic incentives may or may not be feasible.

B. HMO Risk Contracting

For over a decade, HMOs have had the opportunity to contract with HCFA to provide all Medicare-covered services for beneficiaries who choose to enroll. Generally, capitation promises several advantages over fee-for-service. For the provider, the combination of enrollment and fixed capitation payments permits control over the development and operation of an integrated service delivery system. The payer knows its costs in advance, essentially delegates the responsibility for managing care to the contracting health plan, and generally oversees the process. Also appealing about capitation is the overlapping interest in reducing utilization: The health plan can earn financial profits by lower utilization rates, while the payer may reduce its projected expenditure growth rates.

Recently, many HMOs have shown interest in Medicare risk contracting, and the trend is toward higher aggregate enrollment. This is consistent with a deepening penetration of managed care organizations in many health care markets. Many providers and insurance companies are entering multiple contracts to help assure continued or expanded market shares. As in the early 1980's, there is a widespread sentiment that capitation is the "wave of the future" for most payers, including Medicare.

There are difficulties surrounding HMO risk contracting. First, enrollment patterns with favorable selection virtually preclude savings for Medicare. This is because the payment system has weak adjustments for differences in health status between HMO enrollees and beneficiaries in the fee-for-service sector. Although HMOs also can experience unfavorable selection, the voluntary nature of the system allows those plans to exit the Medicare market, leaving only HMOs that make money (Porell and Tompkins, 1993). Second, under capitation the health plan reaps profits from lower utilization while Medicare keeps relatively little of any savings generated through efficiency. Managed care can lead to lower costs (e.g., fewer hospital days of care); however, research findings do not indicate strongly that capitation is necessary to achieve lower costs (Miller and Luft, 1994).

C. Penalize High Cost Hospital Medical Staffs

This proposed approach would withhold a portion of payments to physicians who practice in hospitals deemed to deliver the highest average volume and intensity of service per admission (Welch and Miller, 1994). HCFA would return the amount withheld if the physicians could reduce their average relative value units per admission. This approach is attractive in part because it gives responsibility to physicians who have the authority to manage the relevant utilization patterns. Financial penalties would be focused more on providers identified to have high costs, rather than applying penalties uniformly to all physicians.

A difficulty with this policy is that it focuses on specific episodes and not necessarily on managing all patient care. In addition, it might offer perverse incentives to shift the provision of care away from the inpatient setting, even if unwarranted. Another possible drawback is the

regulatory and adversarial approach to physicians. While engendering goodwill in the physician community need not be HCFA's primary objective, many other payers are concluding that *working with* physicians is their preferred strategy for meeting long run goals of efficient service delivery.

IV. Rationale and Goals for GVPS

A. Rationale

The Federal government has implemented MVPS to control growth in expenditures for professional and supplier services. Payments exceeding target levels can be recouped by reducing updates to fees (i.e., the conversion factors) under the Medicare Fee Schedule.¹ This provides HCFA with a useful tool for enforcing predetermined budgets. However, pooling all physicians' reimbursements at the national level gives weak "collective" incentives for physicians to control utilization levels. Attempts by individual physicians to become more efficient are unrewarded. Even worse, efficient providers who do not provide unnecessary services are penalized immediately through lower revenues.

The Medicare physician payment system involves a dual approach to cost control: strong regulation of prices, and weak incentives to control volume and intensity. There were concerns that strong price regulations could lead physicians to increase volume and intensity in order to offset reductions in their personal incomes. Physicians are aware of these incentives to inflate volume ("churning patients") in order to realize target income levels. In the future, policymakers may want to replace this simple "treadmill" with policies that evoke appropriate responses from physician organizations. Specifically, we are aiming to encourage strategic orientations that focus on managing all services received by patients.

Medicare is one among many payers in the U.S. health care system. Over time, Medicare physician fee levels could become low enough to hinder beneficiaries' access to services. Some analysts are concerned that Medicare may be approaching that point already (PPRC, 1994). To steer away from this possibility, Medicare needs coherent payment policies that allow physicians to manage total expenditures through cost-effective delivery systems, and do not rely on just low prices per unit of service.

Congress acknowledged that refinements to the basic national approach to expenditure control could be warranted, and specifically called for development of group-specific performance standards. The legislation that initiated MVPS included the following provision:

¹ We use the terms volume performance standards and targets interchangeably.

... the Secretary shall ... implement a plan under which qualified physician groups could elect annually separate performance standard rates of increase other than the [national] performance standard rate of increase established for the year ... The Secretary shall develop criteria to determine which physician groups are eligible to elect to have applied to such groups separate performance standard rates of increase and the methods by which such group-specific performance standard rates of increase would be accomplished. (OBRA 1989, Section 1848f.4)

This project is intended to help HCFA explore this possibility.

B. Goals for HCFA and Providers

HCFA conducts business with providers whenever beneficiaries receive Medicare-covered services. HCFA views transactions as expenditures, while providers view them as revenues. In the aggregate, successful control of Medicare expenditures translates into reduced revenues for providers. This creates an inherent divergence of interest between HCFA and providers generally. Still, the potential overlap of interest is very large as well, such as the well-being of beneficiaries and the quality of care. The size of this overlap relative to the divergence of interest is greatest between HCFA and providers that provide the highest quality of services, while being relatively efficient.

We assume HCFA would espouse the following four potential goals for a comprehensive physician payment policy:

- ▶ **Achieve and maintain high quality health care.** Medicare beneficiaries should receive services that equal or exceed prevailing quality standards in the local community.
- ▶ **Improve clinical efficiency.** For each beneficiary, the combination of services results in the lowest cost necessary to meet the quality standards. This means avoidance of unnecessary referrals, tests, and services.
- ▶ **Improve market efficiency.** This is multifaceted:
 - Relatively efficient providers are rewarded and increase their market share,
 - Inefficient providers bear the brunt of fee reductions or other penalties,
 - Providers generally become more efficient in response to the market dynamics, or lose market share.

- ▶ **Achieve budget neutrality.** Implementing GVPS does not lead to higher aggregate Medicare expenditure levels.

Providers electing to participate under GVPS may not all have the same objectives or priorities. However, participation might help them achieve particular goals:

- ▶ **Compensation for clinical efficiency.** Savings attributable to clinical efficiency could be shared with participating providers.
- ▶ **Greater market share.** This may be achieved by increasing the number of patients served and/or the scope of services provided.
- ▶ **Support for new strategic orientations.** Market pressures for efficiency create new challenges and new opportunities for providers. The data and potential for rewards associated with GVPS could promote strategic orientations that include, but go beyond Medicare.

GVPS models may not be better in every respect than the alternatives described in Section III. However, they do resemble the alternatives in certain important ways:

- ▶ **Managed care.** GVPS models could put physician organizations “in the driver’s seat” with respect to managing a broad range of services delivered to their patients. As with HMOs, this policy moves in the direction of integrated delivery systems that manage total patient care.
- ▶ **Involvement of high cost beneficiaries.** Aggregate Medicare expenditure levels are driven by services delivered to a small minority of beneficiaries. Like the high cost medical staff policy proposals, GVPS could engage the providers who currently serve high cost beneficiaries. This is a distinct advantage over capitation, which encourages participation by health plans that do not enroll high cost patients.
- ▶ **Focused individual and collective incentives.** GVPS could change incentives for providers who elect separate performance standards. GVPS also could concentrate penalties and collective incentives on the remaining physician subpopulation—similar to the goal of state level MVPS options.

V. Summary of Basic GVPS Models

A. The Policy Context: MVPS

We propose policy options based on Group-Specific Volume Performance Standards (GVPS). This approach would supplement and refine the national MVPS, which focuses on

rates of increase rather than absolute expenditure levels. This is consistent with policy goals of achieving sustainable growth rates in Medicare spending. Proposed GVPS models emulate the focus on growth rates, which could encourage participation by providers with relatively sick patients and/or elaborate practice styles. Over time, HCFA could transition to models that evaluate providers on their expenditure levels relative to other providers, as well as growth rates.

GVPS models must depart from some aspects of the current MVPS approach. First, national expenditures are measured *in total*, with adjustments for changes in the Medicare population size. At the provider level, it is more valid and convenient to measure performance *on average* for patients seen. Second, current performance standards are set nationally and reflect average performance not only across providers but also across market areas. Valid performance standards for providers need to reflect local market conditions, not expectations averaged across all market areas in the country. Third, the case mix of patients seen by a provider can change over time and performance standards should account for such changes. HCFA has experience with these issues through its capitation payment system, and we borrow from some methods already used by HCFA. Finally, GVPS could encourage physicians to manage *all* Medicare services for their patients. Thus, the policy could embody a vision for physicians to manage their patients, not just their own practices or only professional and supplier services.

B. Methods to Monitor Volume Performance

We measure average resource consumption at the provider level by Reimbursements Per Unique Patient Seen (RPUPS). In the denominator of this ratio are the Medicare beneficiaries who receive physician services from the group during the calendar year. In the numerator are Medicare reimbursements to *all* providers seen by these beneficiaries during the calendar year, for the services included in the measure. Two alternative scopes of service are contemplated for the GVPS option:

- Those services currently under MVPS.
- All Medicare-covered services.

In either case, providers are reimbursed for services according to all of the applicable prevailing payment policies, including the Medicare Fee Schedule for physician services, the hospital Prospective Payment System, etc.

$$RPUPS_{G,Y} = (\text{Reimbursements to All Providers for Patients of } G)_{Y} \div (N)_{G,Y}$$

where **G** is a particular group operating under its own GVPS, and

Y is a calendar year, either a base year or a performance year.

Under GVPS, HCFA would compare resource consumption in a given year to a target level or performance standard that is derived from resource consumption levels for a base year, times a specified percentage rate of increase.

$$\begin{aligned}\text{Target} &= \text{Expected RPUPS}_{\text{Performance Year}} \\ &= \text{RPUPS}_{\text{Base Year}} \times \text{Rate of Increase}\end{aligned}$$

where the **Rate of Increase** is specified by the Federal government.

Targets could be set on a year-to-year basis, using the most recent observed RPUPS as a base. Preferably, targets could be updated cumulatively from the level of RPUPS observed in a specified base year, without regard to intermediate values of RPUPS.

If the observed RPUPS_{Performance Year} is less than the target, the rate of growth in average resource consumption is lower than the rate specified by the Federal government. We explore methods to adjust for differences in a provider's case mix between the base year and performance year. Differences between expected and actual reimbursement rates for a provider's patients are deemed to be savings attributable to changes in relative efficiency. Multiplying the savings amount per patient by the number of Medicare patients seen by the provider produces an estimate of total Medicare savings due to changes in the provider's relative efficiency.

$$\text{Medicare Savings}_Y = (\text{Target}'_Y - \text{RPUPS}_Y) \times N_Y$$

where Y is a given year in which a group's performance is being evaluated,

Target' is the predicted RPUPS_Y, adjusted for differences in the provider's case mix between the base year and the performance year, and

N is the number of Medicare beneficiaries who received physician services from the group (i.e., the denominator in RPUPS_Y).

If RPUPS refers to professional and supplier services only (i.e., MVPS services), the estimated Medicare Savings will refer only to those services. RPUPS also could encompass all Medicare-covered services, and savings would be estimated accordingly.

In addition to measuring Medicare savings each year, HCFA may choose to evaluate *Cumulative* Medicare Savings attributable to a group's performance. In that context, each year the group will make a positive or negative increment to its cumulative savings. Whether a group has accumulated a surplus or a deficit may affect the economic consequences of Medicare Savings in any given year, in terms of rewards or penalties.

C. Rewards and Penalties

If the value of Medicare Savings in a given year is positive, the group has demonstrated improvement in relative efficiency. If the value is negative, the group has not improved its relative efficiency that year. A value of zero means the group exactly has met its target; in other words, the group has met HCFA's specified growth rate for the average provider. These outcomes can be addressed in the payment system through policies that define rewards and penalties. Here we briefly present the concepts and potential mechanisms for dealing with rewards and penalties.

Under MVPS, failure to meet national performance standards leads to blanket penalties for all physicians. The mechanism is to reduce future increases to physicians' fees. In the proposed GVPS models, HCFA would retain its policy of setting uniform conversion factors for all physicians. The GVPS payment system would distinguish between physician groups in terms of relative efficiency by giving *lump sum* reward payments to successful groups. The most conservative type of reward would be based on the actuarial value of any national fee penalties: HCFA could "refund" the value of lost revenues. We also consider models that would go beyond recompensing groups for fee penalties. GVPS models could give rewards based on savings to Medicare, and/or specific penalties for failure to meet performance standards. Penalty amounts could be withheld from future fee-for-service payments to the group.

The value of additional rewards (and penalties) could be a function of several potential factors, beginning with the estimated Medicare Savings. It would be desirable and appropriate for Medicare to retain a portion of the savings. For reasons of equity and appropriate incentives, the physician group also could receive a portion of the savings, i.e., a reward. Because incentives and savings apply to reimbursements to *all* providers, one gauge for reward payments to the group is its proportion of Medicare reimbursements for its patient population. We call this the Patient Capture Ratio (PCR). HCFA may choose other criteria for sharing savings, instead of or in addition to the capture ratio such as a simple rule or Sharing Rate. For example, HCFA may choose simply to share savings equally with the group on the premise that all appropriate Medicare savings are equally valuable to HCFA, whether they result in lower fee-for-service payments to the group or to other providers.² Using these criteria, general models for rewards and penalties are:

$$\text{Reward}_{\text{Group}} = \text{Refund} + (\text{Medicare Savings} \times \text{Patient Capture Ratio}_{\text{Group}} \times \text{Sharing Rate})$$

$$\text{Penalty}_{\text{Group}} = (\text{Medicare Losses} \times \text{Patient Capture Ratio}_{\text{Group}} \times \text{Sharing Rate})$$

² The values of the Sharing Rate may differ for rewards and penalties. Also, HCFA could specify limits on the values of any reward or penalty.

where rewards (penalties) may occur only if a group has positive (negative) Cumulative Medicare Savings.

Paying rewards for the success of groups raises questions about financing and budget neutrality. For savings and rewards related to MVPS services, HCFA still could use the national MVPS to calculate universal penalties. In those calculations, the Medicare Savings amount (for MVPS services) attributed to groups operating under GVPS could be added to the national aggregate expenditure totals. This would ignore the savings generated by the GVPS providers and base penalties on the performance of providers outside of GVPS. Providers under GVPS would receive the same conversion factors, reflecting the penalties, but the difference would be offset by the lump sum payments.³

For other types of services (i.e., not covered under MVPS), the Federal government also has processes for determining increases in payment rates. The context for making those determinations presumably includes budget considerations, although there is no structure that is parallel to MVPS. HCFA may implicitly disregard estimated savings under GVPS when it makes these determinations, effectively creating a parallel situation in which the burden of financial penalties is concentrated on providers outside the umbrella of managed care under GVPS.

Table 1 presents three model variations for GVPS. These three models are presented from among the many potential variations to illustrate important policy parameters regarding the scope of services and the incentive structure. Model 1 uses only professional and supplier services in the definitions of RPUPS and Medicare Savings, while Models 2 and 3 refer to all Medicare-covered services. Models 1 and 2 carry reward potential only, with no specific penalties for failing to meet performance standards, whereas Model 3 carries potential rewards and penalties.

The formulas given in Table 1 for reward and penalty amounts also are illustrative. In each of the models, the formulas refer to the entire scope of services used to define RPUPS. A model that includes provisions for specific penalties might share greater proportions of savings with the group. However, the formula for rewards and penalties need not be entirely symmetric. Furthermore, HCFA may decide to avoid or strictly limit the potential amounts of any penalties, given the absence of patient "lock-in" provisions to control utilization. Model 1 would give rewards to groups equal to any refunds plus $(\text{Medicare Savings} \times \text{Patient Capture Ratio} \times 0.75)$.

³ In an alternative discussed later, HCFA would add back only the specific reward payments to groups in the calculations for MVPS. This would partially credit the national performance with the success of the groups.

Table 1: Summary of Three Model Variations

| | Model 1 | Model 2 | Model 3 |
|------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Services in Volume Measure: | MVPS | All Medicare | All Medicare |
| Formula for Sharing Savings: | | | |
| MVPS: | $(MS \times PCR \times 0.75)$ | $(MS \times PCR \times 0.75)$ | $(MS \times PCR \times 0.95)$ |
| Other: | None | $(MS \times PCR \times 0.75)$ | $(MS \times PCR \times 0.95)$ |
| Formula for Penalties: | | | |
| MVPS: | None | None | $(MS \times PCR \times 0.10)$ |
| Other: | None | None | $(MS \times PCR \times 0.10)$ |

MVPS services include most Part B professional and supplier services, and exclude ASC and outpatient department facility costs, ambulance services and durable medical equipment.

MS refers to the estimated Medicare Savings for the group. PCR is the Patient Capture Ratio, which is the proportion of all patients' Medicare reimbursements that were to the group.

As discussed above, multiplying by the PCR provides a useful estimate of the reimbursements that might have been paid to the group, had they not improved overall efficiency. The Sharing Rate of 0.75 represents a compromise between zero, which reflects traditional fee-for-service, and unity, which conveys a "virtual capitation" scenario.

Model 2 would base reward payments on all Medicare-covered services, with amounts equal to any refunds plus (Medicare Savings \times Patient Capture Ratio \times 0.75). Model 3 carries higher potential rewards, equal to any refunds plus (Medicare Savings \times Patient Capture Ratio \times 0.95), and would account for negative Medicare Savings estimates through a penalty equal to (Medicare "Losses" \times Patient Capture Ratio \times 0.10). This moves toward virtual capitation.

VI. Utilization Measures

A. The Basic Measure: RPUPS

HCFA monitors *total* reimbursements for physician and supplier services under MVPS, making explicit allowance in the performance standards for growth in the Medicare population. Under GVPS models, however, we work with *average* reimbursements because the number of patients seen by a group can change unpredictably over time. Similarly, insurers often express their costs as rates per person, “per member-month,” etc. These are convenient measures for comparing differences between subpopulations, and for assessing trends over time even when the population size changes. In the GVPS context, the “population” is the set of Medicare beneficiaries seen by a physician organization during a calendar year. Costs are measured from HCFA’s perspective, i.e., as Medicare reimbursement amounts for patients seen by the group.

One goal for GVPS is to help control aggregate reimbursements, or equivalently, reimbursements per beneficiary. A physician group that manages utilization *within* its own system is likely to contribute to lower Medicare costs overall. However, an objective here is to develop an appropriate measure that takes account of any excessive or potentially offsetting services from other providers. Therefore, the measure of provider performance includes *all* relevant services for patients seen, including those delivered by other providers. We would like physician groups to embrace the perspective of the entire patient, for clinical and economic reasons.

The ratio constructed from the unique Medicare patients seen by a provider and those patients’ Medicare reimbursements, we call Reimbursements Per Unique Patient Seen (RPUPS). This measure includes only services delivered to a provider’s patients—not all beneficiaries in the same city, county, state, etc. Accordingly, the measure of an individual provider’s performance would exclude beneficiaries who either saw no physician during the period, or saw only physicians outside that physician organization.

There are several potential variations on the basic definition of RPUPS. Whatever the specific definition, RPUPS would be defined and measured the same way each year. RPUPS for one year would constitute the baseline to which a target rate of increase is applied. Comparing changes in the value of RPUPS between years to target rates of change will allow HCFA to determine whether a physician organization is helping to achieve national aggregate target rates of increase.

B. Scope of Services

MVPS includes most Medicare Part B physician, professional and supplier services. Among services not included are facility usage (including ambulatory surgical centers and hospital outpatient departments), ambulance services, and durable medical equipment. The same set of services could be applied to the utilization measure for physician groups under GVPS.

Alternatively, the scope of services could be expanded to include institutions and all other services. We consider models that differ in terms of the scope of services included in the measure of physicians' performance:

- Services currently included under MVPS, or
- All Medicare-covered services.

Expanding the roster of services could help GVPS to extend incentives for efficiency to the rest of Medicare-covered services. Inclusion of other services could give more opportunities for physicians to reduce overall expenditures. It is believed that HMOs have achieved savings relative to fee-for-service through reduced hospital utilization. This may continue to be true, although as hospital days of care decline in most regions, management of home health care, post-acute, and professional services becomes more important in competitive markets. In general, the successes of managed care generally are likely to stem from cost-effective innovations and substitutions involving a wide range of services.

During this study we worked with physician groups located in different parts of the country. Our study files contain data from the geographic areas where most of these physician groups are located. We defined the geographic areas as the three-digit ZIP Code areas that account for at least five percent of Medicare patients seen by the original set of groups. From each of the study areas, we selected a sample of providers that appeared to be the most likely candidates for GVPS. Selection was based on the provider having a large number of physicians, a large number of beneficiaries seen, and high Medicare reimbursement levels in 1992.

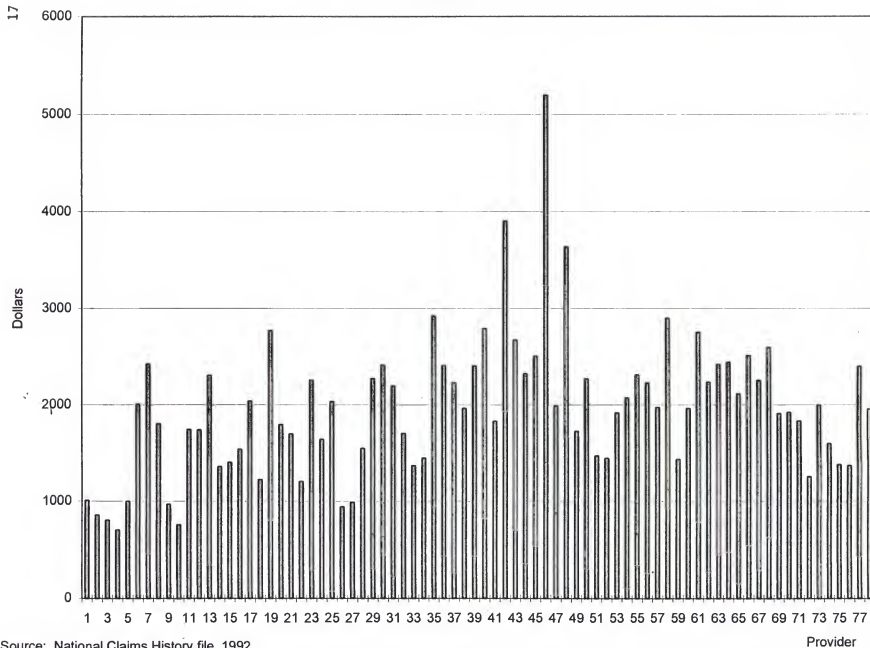
Also, from each area we drew random samples of beneficiaries who received services from *any* physician provider in the selected geographic areas, in order to determine market trends. We obtained all Medicare claims records from 1991 through 1993 for every beneficiary who saw any of the sample providers anytime during that period. The average number of Medicare beneficiaries seen at least once in 1992 by the 78 providers was about 15,000. For the beneficiaries sampled randomly we also obtained all Medicare claims records from the years 1991 through 1993. See Appendix B for a fuller description of the data steps.

C. Illustrative Findings

Figures 1 and 2 show the values of RPUPS in 1992 for 78 selected providers located in ten of the geographic areas included in this study. The values of RPUPS differ substantially between providers, reflecting differences in case mix, relative efficiency, input prices, and Medicare carrier or fiscal intermediary practices.

Figure 1 shows values of RPUPS based on reimbursements for physician and supplier services. For all 78 providers, RPUPS averaged \$1,969 and ranged from \$706 to \$5,200. If the providers with the single highest and single lowest extreme values are ignored, RPUPS averages

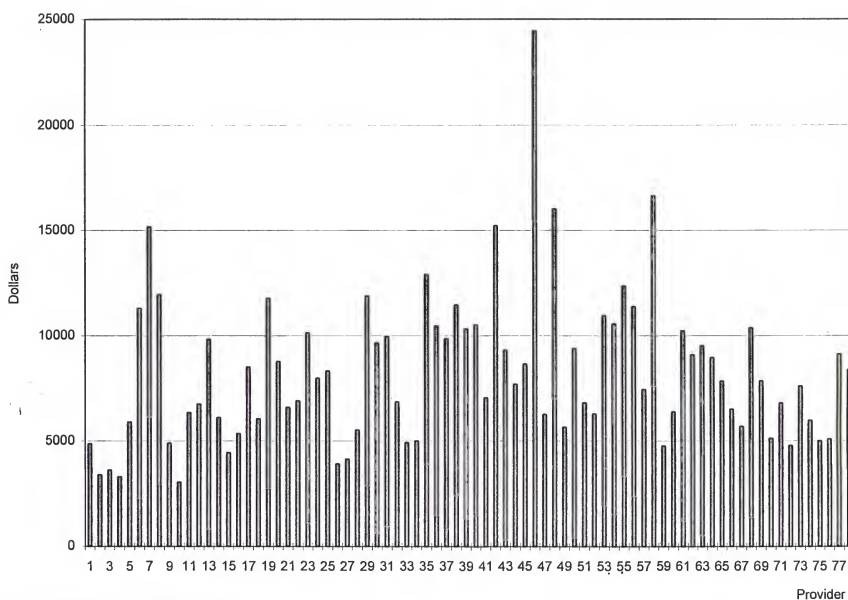
Figure 1: RPUPS Values for 78 Providers Selected from 10 Markets, Physician and Supplier Services



Source: National Claims History file, 1992.

Note: Reimbursements Per Unique Patient Seen (RPUPS) are the mean Medicare reimbursements for Medicare patients seen by the provider, unadjusted for case mix or geographic differences in prices.

Figure 2: RPUPS for 78 Providers Selected from 10 Markets, All Medicare Services



Source: National Claims History file, 1992.

Note: Reimbursements per Unique Patient Seen (RPUPS) are the mean Medicare reimbursements for Medicare patients seen by the provider, unadjusted for case mix or geographic differences in prices.

\$1,944 and ranges from \$759 to \$3,907. Figure 2 shows results for all Medicare-covered services. For all 78 providers, RPUPS averaged \$8,297 and ranged from \$3,072 to \$24,451. If the providers with the single highest and single lowest extreme values are ignored, RPUPS averages \$8,153 and ranges from \$3,324 to \$16,647.

Figure 3 shows the proportion of total reimbursements that was for physician and supplier services for each provider's patients. Physician and supplier services averaged 25 percent of the total and ranged from 15 to 39 percent. Figure 4 shows that there was also a wide variation in the proportion of reimbursements for physician and supplier services that were paid to *that* provider, averaging 18 percent and ranging from 2.9 percent to 52.9 percent. This represents the Patient Capture Ratio for those services.

Physician groups were defined using the Provider Tax Number, also known by the IRS as the Employer Identification Number (EIN), which is available only for physician and supplier service claims. However, physician group practices can be part of integrated health systems that include facilities and other types of providers. Data limitations (i.e., the absence of EINs) make it difficult to measure capture ratios for these other types of services. Calculating the PCR for all Medicare services would require the Provider Identification Numbers of facilities and other provider entities affiliated with the physician group. Later we discuss some possible implications of these alternatives (see Section VIII, E).

For GVPS, relevant comparisons relate to changes in RPUPS over time *in relation to* changes in market-wide measures of RPUPS. We discuss those comparisons next, along with setting targets and estimating savings due to relative efficiency. Note that Appendix C presents potential variations in the definition of RPUPS, including removing some beneficiaries from RPUPS, removing some categories of reimbursement from RPUPS, and adjusting RPUPS for changes in case mix.

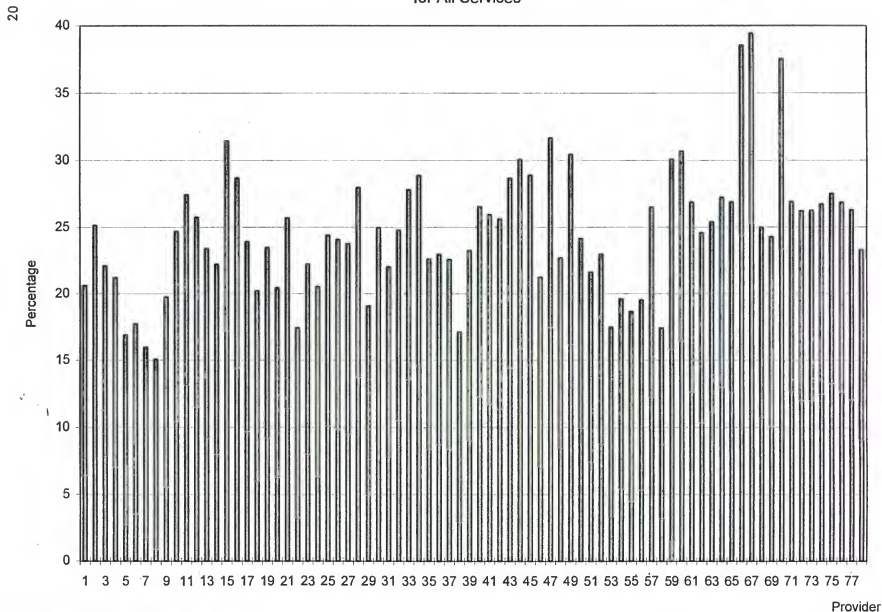
VII. Setting Performance Standards or Targets

A. Scope of Services

HCFA can calculate the value of RPUPS each year for every group operating under GVPS. In order to estimate the change in relative efficiency of the provider, as well as the resulting savings to Medicare, we need to set a target, or volume performance standard, for the provider. As discussed above, we explored measures of RPUPS based on physician and supplier services, and all Medicare-covered services.

The most straightforward implementation of GVPS, from a regulatory point of view, might involve just the services under the current MVPS (i.e., most physician, professional and supplier services). The Federal government already specifies rates of increase for those services,

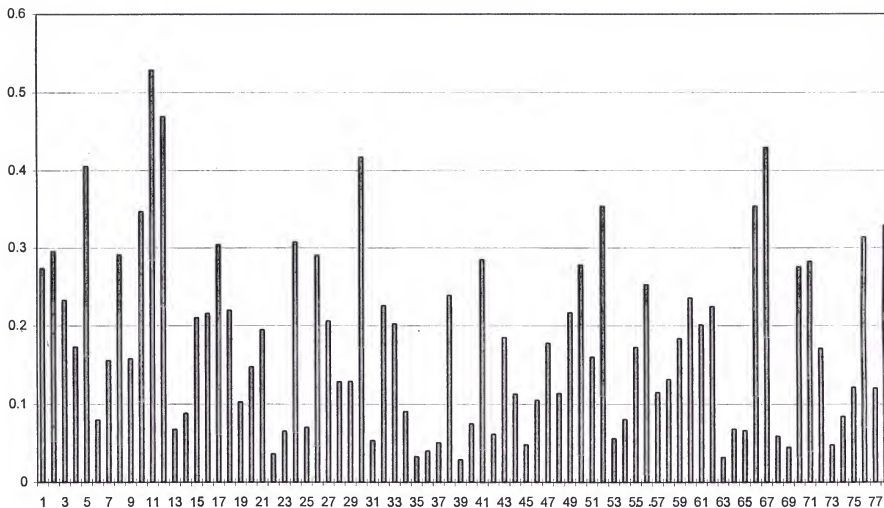
Figure 3: RPUPS Values for Physician and Supplier Services, as a Percentage of RPUPS Values for All Services



Source: National Claims History file, 1992.

Note: Reimbursements per Unique Patient Seen (RPUPS) are the mean Medicare reimbursements for Medicare patients seen by the provider, unadjusted for case mix or geographic differences in prices.

Figure 4: Reimbursements to Provider vs. All Physician and Supplier Reimbursements
(Patient Capture Ratio)



Source: National Claims History file, 1992.

Provider

and GVPS could be adapted from the national performance standards. One difference would be to remove that portion of the total increase attributable to growth in the number of Medicare beneficiaries, since volume is measured per person under GVPS.

However, the GVPS alternatives would allow HCFA to introduce incentives for providers to manage care. Consideration needs to be given to the appropriate scope of services. Health care delivery systems of today often are more vertically integrated and include primary care, tertiary care, facilities, etc. For hospital and other institutional services, HCFA would need to expand the MVPS concept. Presumably, HCFA would set targets that were commensurate with the standards for physician and supplier services. In other words, similar actuarial principles or policy objectives would be embodied in the methods and data used for the different categories of services. HCFA could use projections that are involved in setting Adjusted Average Per Capita Cost (AAPCC) rates for Medicare payments to HMOs.

Although MVPS is now limited to physician and supplier services, more substantial cost increases are occurring for other services (see discussion below). This adds another practical advantage to expanding GVPS to include all Medicare-covered services, and to give physicians incentives to manage the whole range of services for their patients.

B. Differential Growth Rates Based on Location

Under MVPS, the Federal government specifies national rates of increase for the coming year. The current MVPS does not explicitly account for geographic variations in the factors underlying the national performance standards. Targets are set and performance is monitored at the national level only. This is consistent with MVPS being a budget tool and not an incentive system. Total spending for those services is governed, even though actual rates of increase can differ among regions and local areas. Between 1990 and 1991, expenditures per Medicare enrollee for physician and supplier services actually fell in several states, and grew by as much as 21 percent (in Nebraska). The nation averaged a 4-percent increase during this period (PPRC, 1993).

Moving to genuine incentive systems may require that more consideration be given to appropriate geographic differences in the target rates of increase. A national target is a weighted average of local differences, and does not conform to the local perspectives of states, counties, cities, or providers. The target rate of increase should reflect a level of expectation that is consistent across sites in different geographic areas. A provider should not win or lose under GVPS simply because of its location.

At the other extreme, target rates of increase perhaps should not be based solely on the historical experience of the provider. Basing rates on lower (higher) rates of growth by a provider would tend to penalize (reward) historical efficiency (inefficiency). A challenge under GVPS will be to define actuarial reference populations that reflect relevant local trends but do not focus too closely on the provider's own experience. In this study we operationalize the

concept of targets using data in our study files. We compare average increases within markets areas to rates of change at the provider level. This allows us to examine the stability and rates of change in RPUPS at the provider levels.

Table 2 shows the rates of growth in Medicare reimbursement rates per patient for the random samples of beneficiaries drawn from each of the ten market areas.⁴ Generally, there were much greater increases for all services compared to physician and supplier services, and greater increases between 1991 and 1992 than between 1992 and 1993. For physician and supplier services from 1991 to 1993, larger increases occurred in Massachusetts (8%), Michigan and Pennsylvania (4%), Florida (3%), and Minnesota (2%). Lower increases occurred in Ohio (-2%), Arizona (0%), Louisiana (1%) and New Mexico (1%). Between 1991 and 1993, larger increases

Table 2: Rates of Change for Medicare Reimbursements Per Enrollee

| <u>State Market</u> | <u>Area Physician and Supplier Services</u> | | | <u>All Medicare Services</u> | | |
|---------------------|---|--------------|--------------|------------------------------|--------------|--------------|
| | <u>92/91</u> | <u>93/92</u> | <u>93/91</u> | <u>92/91</u> | <u>93/92</u> | <u>93/91</u> |
| AZ | 1.00 | 1.00 | 1.00 | 1.04 | 1.02 | 1.06 |
| FL | 0.99 | 1.05 | 1.03 | 1.14 | 1.09 | 1.25 |
| LA | 0.98 | 1.02 | 1.01 | 1.13 | 1.07 | 1.21 |
| MA | 1.03 | 1.04 | 1.08 | 1.14 | 1.09 | 1.24 |
| MI | 1.03 | 1.00 | 1.04 | 1.15 | 1.06 | 1.22 |
| MN | 1.00 | 1.02 | 1.02 | 1.09 | 1.03 | 1.13 |
| NM | 1.00 | 1.01 | 1.01 | 1.11 | 1.06 | 1.18 |
| OH | 1.01 | 0.97 | 0.98 | 1.11 | 1.01 | 1.12 |
| PA | 1.05 | 0.99 | 1.04 | 1.15 | 1.04 | 1.20 |

Source: National Claims History file, 1991-1993.

* Appendix B contains maps showing the 3-digit ZIP Code areas selected from each state.

⁴ Our advisory committee had major sites in eleven states, including Texas and New York. Data problems generally precluded us from analyzing trends in Texas, including Scott & White Clinic. We did not include the providers in rural New York (Upper Hudson Primary Care Consortium, etc.) in this report because of our emphasis on large, multispecialty groups. Lahey Clinic and Fallon Clinic are in Massachusetts. Although there was only a modest overlap in their service areas, we combined the two Massachusetts areas when calculating market level trends.

for all Medicare services occurred in Florida (25%), Massachusetts (24%), Michigan (22%), Louisiana (21%), Pennsylvania (20%), and New Mexico (18%). Lower increases occurred in Arizona (6%), Ohio (12%), and Minnesota (13%).

These differences reveal the problems associated with national average target rates of increase. Faced with a national average target rate of increase, a provider in Arizona would have less difficulty than a provider in Massachusetts, for example. Therefore, the target should reflect local market conditions for the provider, and/or the growth rates in market areas where patients reside. For most providers, these two alternatives are virtually the same. However, for other providers this could be a worthwhile distinction. For example, some providers are located in tourist or seasonal migration areas and serve a significant number of patients who live elsewhere for much of the year. Other providers are regional or national medical centers that serve patients from all over the world, and Medicare patients from all over the country.

Observed differences in growth rates between areas probably reflect both random variations, and short term or long term systematic factors. The difficulty forecasting short term growth rates for a particular area is not limited to HCFA and Medicare. Private and public insurers have to forecast future incidence rates of illness, changes in practice patterns, and utilization rates for enrollees. Managed care organizations and other providers with a watchful eye on utilization patterns, however, can exert some control over patterns of change over time.

HCFA addresses this issue explicitly in its payment system for HMO risk contractors, the AAPCC, which bases rates on the enrollee's county of residence.⁵ Annual rates of increase for each county in the nation are derived from the average national increase times a five-year average of the ratio of county to national reimbursement rates. As reimbursement rates in a county show systematic changes in relation to national trends, the historical ratio changes, affecting the forecasts for that county. At the same time, the five-year moving average smooths out the effects of year-to-year stochastic variations in the ratio. This approach involves forecasting error, but over several years the predictions are fairly accurate. Difficulties in forecasting short term utilization outcomes also support using longer term, cumulative targets (discussed below).

HCFA could apply the AAPCC approach on a county basis, as it does for capitation rates for aged and disabled. Alternatively, HCFA could choose other geographic areas, such as the state, which underlies capitation payment rates for ESRD beneficiaries. Because HMOs enroll Medicare beneficiaries from more than one geographic area (i.e., county), their payments reflect the geographic dispersion of enrollees. So, too, HCFA could adjust national projections to specific provider organizations by applying the data and methods underlying AAPCC rate projections, using a set of counties that are relevant to that provider (as with each HMO). There are alternatives for defining relevant geographic areas, such as:

⁵HCFA sets AAPCC rates at the state level for ESRD beneficiaries.

- Whole state(s),
- Counties,
- Metropolitan Statistical Areas and designated rural areas, and/or ZIP Code areas.

HCFA has alternatives for deciding *which* states, counties, etc. to use for a particular group:

- Within a specified radius of the provider's service delivery sites,
- Where the provider has service delivery sites,
- *Areas a significant proportion* of the provider's Medicare patients reside, or
- Each area where *at least one* Medicare patient seen by the provider resided.

For the empirical results presented below, we used a random sample of beneficiaries drawn from the market areas for each provider. The market areas included the three-digit ZIP Code areas in which at least 5 percent of Medicare patients resided who were seen by the original or "nucleus" site.⁶ On the NCH files, the only geographic identifier that beneficiaries and providers have in common is the ZIP Code.

C. Provider Level Versus Market Level Changes

In addition to addressing differences in growth rates at the market level, it is necessary to investigate whether measures of average resource consumption, specifically RPUPS, are sufficiently stable at the provider level. Do the values of RPUPS "jump around" due to random factors to such a degree that targets based on a previous year are meaningless? Or, do changes in RPUPS bear systematic resemblance to market level changes in reimbursement rates?

We examined these questions using the provider samples described earlier, and in Appendix B. Average market level changes were estimated using the random samples of beneficiaries drawn from each of the areas. The resulting rates of change were shown previously, in Table 2. We now compare the changes for each provider to the applicable rates of change at the market level.

⁶We found significant geographic clustering of most patients around the sample providers. Although the five-percent rule strictly applies only to the ten (advisory committee) sites, the geographic market areas probably are a reasonable approximation of the market areas served by the 78 providers.

Figure 5 shows results for comparisons between the average market level changes and provider level changes between 1991 and 1992. The origin of the axes represents a perfect prediction for changes in the value of a provider's RPUPS based on average changes at the market level. The horizontal axis shows deviations from the target for physician and supplier services; the vertical axis shows deviations from the target for all Medicare services. Recall that these providers were selected nonrandomly, and each typically represents a small percentage of beneficiaries in each area. Consequently, the average provider's rate of change need not automatically correspond closely to the average market level rate of change.

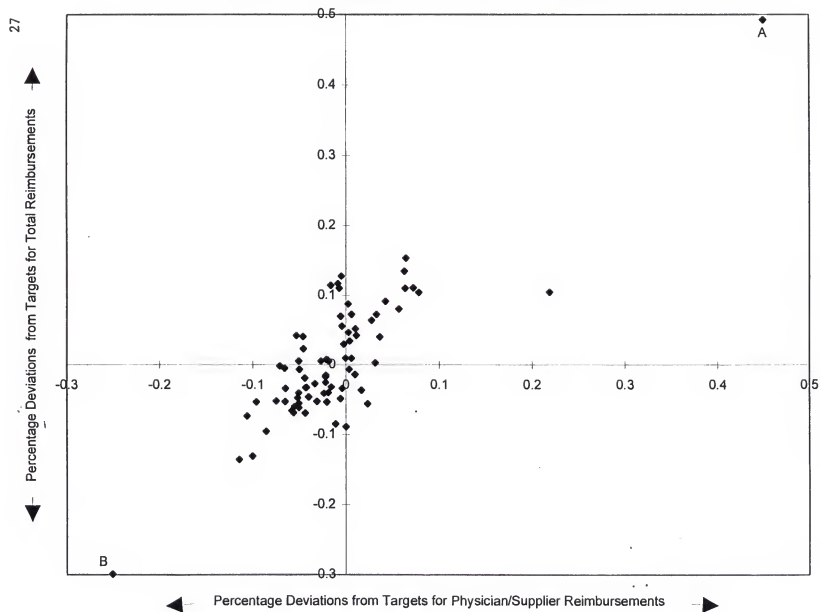
There is a significant concentration of providers in the third quadrant, i.e., where the actual growth rates at the provider level were less than the average change for the market. The second largest concentration is in the first quadrant, reflecting higher rates of change for the provider than is average for its market. Perhaps most encouraging is that the large majority of providers are huddled within plus or minus 10 percent of the origin on both axes. The providers' average unweighted absolute deviation from the relevant target was 4.6 percent for physician and supplier reimbursements, and 6.2 percent for total Medicare reimbursements.

There are at least two points that deviate substantially from the market average rates of increase. These are marked Points A and B on Figure 5. These are not among our primary sites, and we do not know a great deal about them at this time. However, we do know that Provider A saw 63 percent fewer Medicare patients in 1992 as compared to 1991. Similarly, Provider B saw 58 percent more Medicare patients in 1992, compared to 1991. In contrast, the average absolute percentage change in the number of patients seen for the remaining providers was 13.5 percent. Removing Providers A and B reduces the unweighted average absolute percentage deviation from the relevant target from 4.6 percent to 3.9 percent for physician and supplier reimbursements, and from 6.2 percent to 5.4 percent for total Medicare reimbursements.

Figure 6 shows similar results using values of RPUPS for 1992 predicting 1993. Once again, there is a cluster of points deviating from both targets by only single-digit percentages, and a smaller group with larger deviations. Several of the "outliers" are marked as Providers C through H. Not being any of the providers with whom we have worked, again we know comparatively little about them. Only one of them saw more than 4,000 beneficiaries in 1993 (Provider C), while one saw only about 400 (Provider F), a substantial drop from the number seen in 1992. In general, these providers had large changes between the years in the number of Medicare patients seen. For example, Provider C served nearly three times the number of beneficiaries in 1993, as compared to 1992.

We suspect that these (and other) providers have undergone significant changes in their size and composition over time. The resulting "shock" to the values of RPUPS from unseen changes in the providers is less of a policy or data concern at this time, but more likely serves to highlight the limitations of observing organizations over time using a single identifier. We presume, accordingly, that when physician groups work with HCFA under GVPs, information routinely given to HCFA will include changes in their organizational composition. For example,

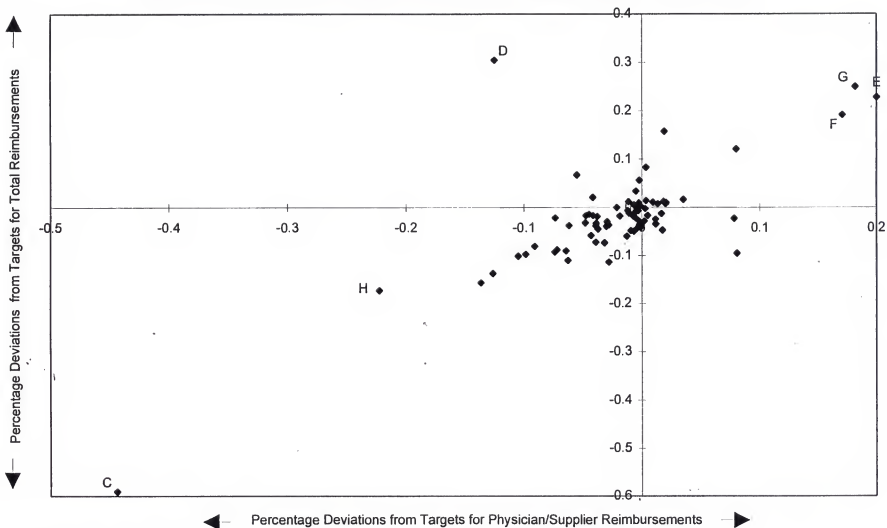
Figure 5: Deviations from Targets for 78 Providers in 10 Market Areas: 1991 to 1992



Source: NCH file, 1991 and 1992.

Note: Utilization measures for markets and providers are Reimbursements Per Unique Patient Seen (RPUPS).

Figure 6: Deviations from Targets for 78 Providers in 10 Market Areas: 1992 to 1993



Source: NCH file, 1992 and 1993.

Note: Utilization measures for markets and providers are Reimbursements Per Unique Patient Seen (RPUPS).

health systems around the nation have been acquiring primary group practices. When this happens, such a group would inform HCFA of the change. Services provided through the newly acquired primary care practice would be folded into the values of RPUPS for baseline and performance periods so that abrupt changes do not invalidate the target.

Figures 7 and 8 show results for ten of the original physician groups with whom we have worked during this study. For these providers, the actual RPUPS in the second year ranges from about 4 percent higher than the target to about 7 percent less than the target. From 1991 to 1992, five of the ten providers were in the third quadrant; from 1992 to 1993, seven of the ten providers were in the third quadrant. Of the three groups in other quadrants (Groups M, N and O), two were also outside the third quadrant in Figure 7 (M and O).

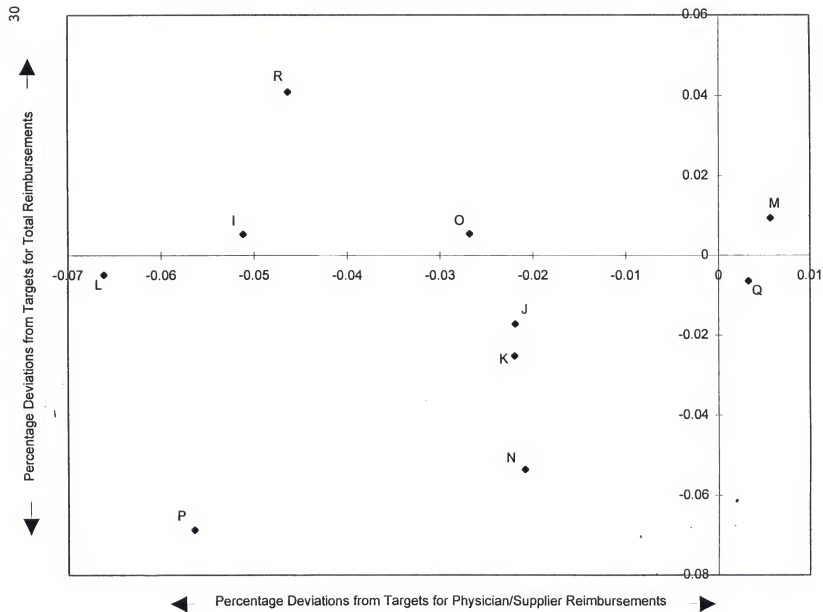
D. Cumulative Versus Year-to-Year Targets

MPVS has been implemented on a year-to-year basis. This approach is relatively "forgiving" in that actuarial projections underlying the expenditure targets take into account the most recent utilization patterns. There are proposals to designate a base year and make future targets (and penalties) cumulative. Long run cost control may be achieved more reliably if target rates of increase in Medicare expenditures are set with respect to a specific baseline year. For example, the target for Year 2 could be specified as 5 percent above expenditure levels in Year 1; the target for Year 3 could be 10 percent above expenditure levels in Year 1, without regard to actual expenditures in Year 2.

For GVPS, each approach has advantages: cumulative targets could better reward successful groups, while year-to-year targets may encourage more groups to "give it another try" each year. The ability of physician groups to alter utilization patterns may vary from one year to the next. Sizeable efficiencies in one year may be followed by less relative change in the next year. If the group was still ahead of the average, its relative efficiency still could be rewarded through cumulative targets. If targets are always based on the most recent data, then the target each year would be reduced in accordance with the improved efficiency. Consequently, rewards would be harder to generate. Groups might have to "pace themselves" with incremental improvements each year in order to achieve the same rewards for cumulative gains that would occur using cumulative targets.

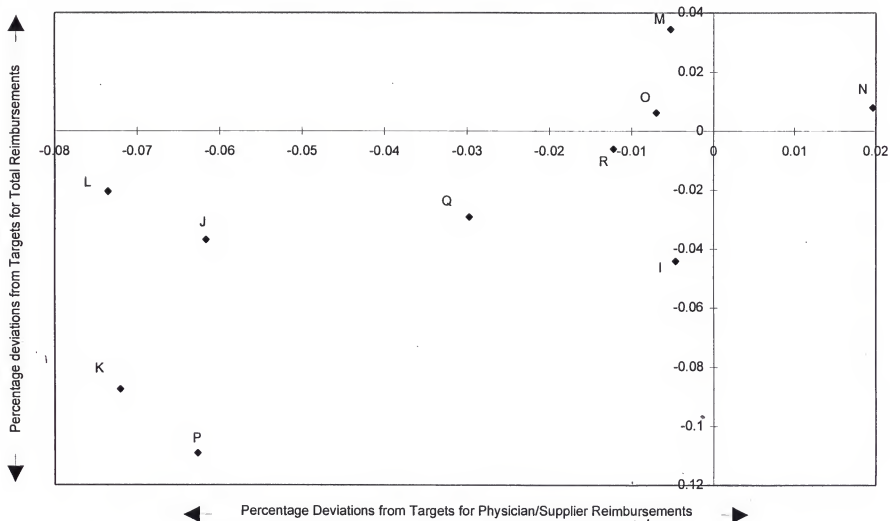
On the other hand, participating groups that fail to meet targets in the early years would find it more difficult to "get below" the cumulative target. This has two aspects. First, if a group really tries to manage services but has higher than average growth rates, it may conclude that meeting future cumulative targets is unlikely. Second, HCFA could track cumulative savings (or deficits) for the group and not pay rewards unless or until cumulative savings are positive. If a group accumulates a deficit, it may conclude that the present value of future reward payments is very low. Furthermore, if special penalties await groups that fail to meet their targets (discussed below), participation under GVPS could be brief.

Figure 7: Deviations from Targets for 10 Selected Providers: 1991 to 1992



Source: NCH file, 1991 and 1992.

Figure 8: Deviations from Targets for 10 Selected Providers: 1992 to 1993



Source: NCH file, 1992 and 1993.

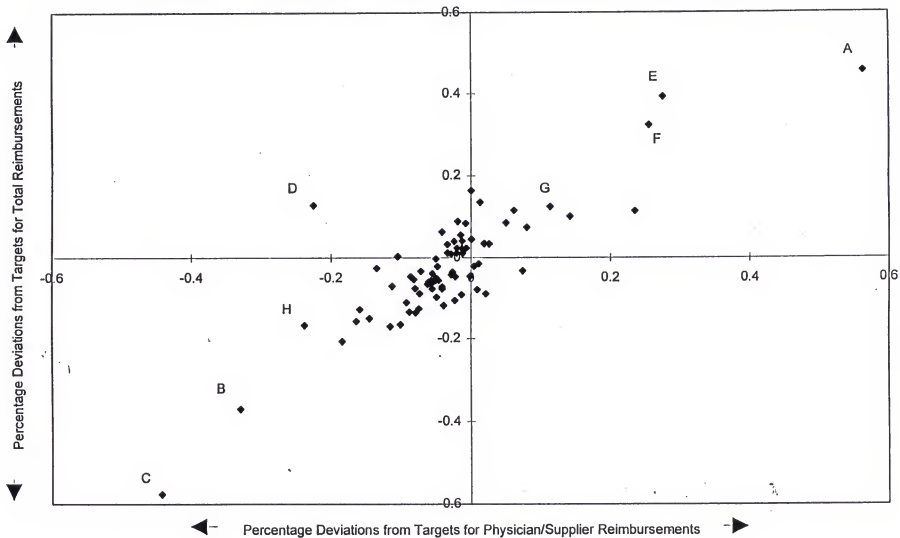
Figure 9 shows the results of predicting RPUPS for 1993 by multiplying RPUPS for 1991 times cumulative rates of increase for each respective market area. Since these are the same providers shown earlier, the deviations are additive. If providers' deviations from market averages continued in the same direction (higher or lower than the market), the data points would tend to move away from the origin (the market prediction). If deviations were more random and therefore canceled out over time, the points would be closer to the origin after two years than the one-year comparisons. In general, the cumulative deviations tended to be larger (8.1 percent for physician/supplier services, and 9.5 percent for all Medicare services) than for the one-year targets (4.6 percent for physician/supplier services, and 6.2 percent for all Medicare services). The aforementioned specific points that changed significantly during this period (i.e., A through H) are shown again in Figure 9.

Figure 10 shows the cumulative targets for the 10 selected physician groups. Eight out of the 10 providers were in the third quadrant, indicating lower rates of increase compared to the average market changes, for both physician/supplier services and all Medicare services. Only Providers M and O were above their respective market level rates of increase for either scope of service. Most of these multispecialty group practices appear to be manifesting lower rates of growth than is average for their respective market areas.

The approach of a cumulative target may be workable, given the reasonable stability of provider level measures of RPUPS relative to the market level random samples. A cumulative target embodies more fully the principle behind payment system reform, namely to set in place incentive systems that work toward long run cost containment. Perhaps HCFA could introduce further refinements of this approach, such as fixing any errors that may have resulted in the process of setting targets. Examples would be to adjust for errors made in forecasting exogenous factors such as the rate of inflation or growth in gross domestic product, if these are factors HCFA would use in setting targets.

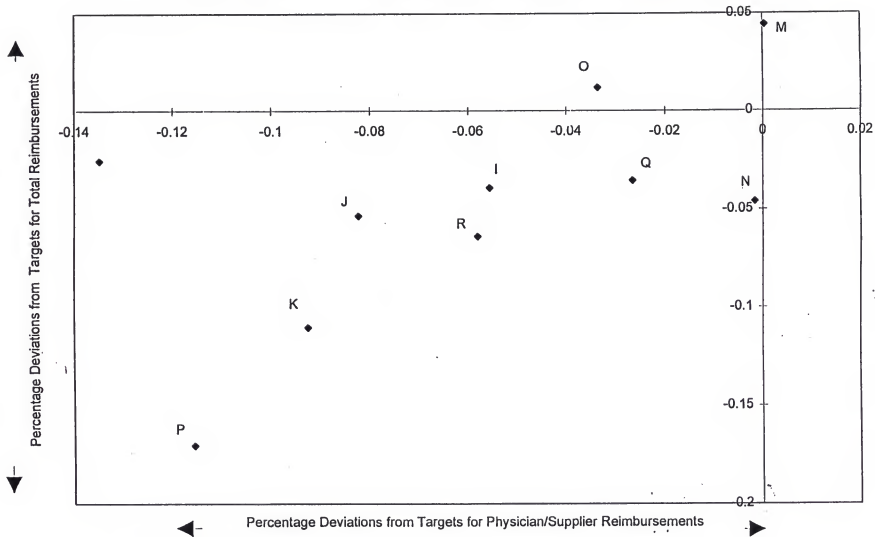
Another issue is selecting the base period from which to make projections. For a policy that begins soon, the latest data available would be for 1993 or 1994. Some groups may prefer to use an earlier year because they have implemented a number of managed care systems in recent years and would prefer credit for these achievements. The earliest HCFA probably would consider is 1992, because so many changes have taken place in reimbursement policy (e.g., the MFS) since 1991. A related issue is whether and when to "rebase," i.e., to choose another actual year of data from which to make further cumulative targets. We recommend that HCFA wait before deciding when to rebase the GVPS, and simultaneously consider ways to measure cross-sectional differences in RPUPS. Including methods for recognizing differences in efficiency within a given time period could help avoid the problem of lowering targets for physician groups essentially because of their successes to date.

Figure 9: Deviations form Targets for 78 Providers in 10 Market Areas: 1991 to 1993



Source: NCH file, 1991 and 1993.

Figure 10: Deviations from Targets for 10 Selected Providers: 1991 to 1993



Source: NCH file, 1991 and 1993.

VIII. Rewards and Penalties

A. Policy Questions and Objectives

The potential economic consequences of GVPS for physician groups and for HCFA are discussed in this section. The factors that determine the economic results of GVPS have to do with the incentives and financial transactions related to rewards and penalties.

The MVPS system links physicians' fees to national aggregate expenditures in order to recoup excessive payments. In that context, penalties are instrumental in achieving budgetary goals. As alternatives to the current national approach are considered, the role of rewards and penalties needs to be assessed carefully. In particular,

- ▶ Should voluntary participants face potential penalties that exceed those imposed on other physicians?
- ▶ How could the amounts of the rewards or penalties be determined?
- ▶ What are the sources of funding for rewards, assuming budget neutrality?
- ▶ What mechanisms could be used to administer rewards and/or penalties?

The policies chosen in response to these questions presumably ought to reflect the assumptions behind, and the objectives for, GVPS. Our discussion assumes that HCFA would desire to:

- ▶ Encourage participation among qualified providers if broad participation would achieve the largest savings for Medicare,
- ▶ Encourage and reward successful improvements in the efficiency of practice—an ingredient normally missing in the fee-for-service sector, and possibly to
- ▶ Encourage beneficiaries to receive care from the most efficient providers.

The remainder of this section addresses the policy issues involving rewards and penalties for groups under GVPS specifically, and under MVPS generally.

B. Options for Rewards and Penalties

The table below conveys four general scenarios that could occur if a GVPS option were available. The scenarios are defined in terms of whether a hypothetical participating group and/or physicians nationally meet their designated expenditure targets.

| GVPS Met? | National MVPS Met? | |
|-----------|--------------------------|-----------------------|
| | Yes | No |
| Yes | Both targets met | Only group target met |
| No | Only national target met | Neither target met |

Without GVPS, there are two observed scenarios: the nation does or does not meet the performance standard(s). Although individual groups may be improving their efficiency relative to the average even without explicit incentives, these differentials are unobserved and unrecognized. In addition, the adoption of GVPS could help to foster improvements in efficiency among some or all participants, which would be observable as the four scenarios portrayed above. There also is the issue of *how much* the actual outcomes differed from the respective targets, which can be included in deciding the amount of the rewards or penalties.

In principle, it may be advantageous to differentiate all physician groups, and assess their volume performance separately. In practice, there are administrative and other factors that might make that goal unattainable. HCFA may wish to assess the volume performance of qualified, selected groups separately, and the remaining providers together as an undifferentiated group. It also may be desirable, in principle, to reward or penalize each group that is differentiated under its own performance standard, including the residual physician population. However, at this point, Congress has called for potential differentiation on a voluntary basis. Among our advisory committee, we found that models with penalties concentrated on groups that fail to meet their target might be acceptable to some physician organizations, but not to others. We offer model variations with and without concentrated penalties for volunteering organizations.

The options associated with *successful performance of groups* under GVPS include to:

- ▶ **Avoid or refund blanket penalties that occur under MVPS, without giving extra rewards.** Groups could be exempted from any general penalties imposed on physicians' fees in the event of unfavorable national performance.
- ▶ **Avoid or refund blanket penalties, and give extra rewards.** Groups could earn rewards in addition to avoiding penalties. This could provide extra incentives for participation, and reward efficiency for services other than physician services (e.g., hospital savings).
- ▶ **Give extra rewards, without avoiding or refunding blanket penalties.** Groups could be rewarded for their observed successes, but still be subjected to penalties that apply to all physicians in the nation.

The options associated with *unsuccessful performance of groups* under GVPS include to:

- ▶ **Limit penalties to any changes in the national conversion factors.** In the event a group fails to meet its target, the group could receive the same penalties (if any) as physicians in the national pool. For example, the single national conversion factor(s) would apply to the group, and no offsetting financial reward would be forthcoming. This is equivalent to a “hold harmless” provision for GVPS.
- ▶ **Impose concentrated penalties.** An alternative would be to impose penalties on participating groups that fail to meet their own targets. This could be justified as an additional incentive for efficiency. Alternatively, this may be viewed as an equitable punishment for allowing Medicare expenditures to rise faster than the Federal government’s specified rate. A third reason may be perceived equity from symmetry of upside and downside risks. Fourthly, HCFA may wish to establish each group as a separate population, between which there is no subsidization of penalty amounts. Lastly, concentrated penalties may deter participation by groups that are not likely to succeed, saving administrative costs. This would function similar to eligibility criteria, i.e., to limit participation to the groups most likely to succeed.

Refunding national fee penalties to groups that met their own GVPS would help to achieve equity in payment. Rewards and/or penalties could be implemented in order to achieve equity in payment, to help induce efficiencies, or to affect participation patterns among groups. Sharing the program savings with groups that beat their own GVPS would instill fundamental changes in the incentive structure that exists under fee-for-service. In either case, implementing a GVPS model that allows for potential rewards but not concentrated penalties may stimulate many physician organizations to volunteer for GVPS. In that context, non-participation may result from factors such as:

- ▶ Insufficient interest (e.g., proportionally few Medicare patients),
- ▶ Failure to meet other criteria for qualification (e.g., narrow scope of practice), or
- ▶ No desire to encourage scrutiny of utilization patterns.

There may be a connection between the attractiveness of concentrated penalties and the method for setting targets (i.e., cumulative versus rebasing each year), and the method for estimating Medicare Savings (i.e., cumulative and/or yearly). Rebasing a group’s target each year based on actual utilization—in the absence of potential concentrated penalties—might lead to incentives for the group to inflate its base in some years, alternating with years of reaping rewards for artificial savings. Penalties could reduce the benefit of this ploy. Similarly, cumulative targets could create a natural penalty situation when a group inflated utilization rates

unless a provider was able to churn patients “at will” and yet demonstrate long run relative efficiency. The potential benefit of gaming could be reduced even further if HCFA paid rewards to a provider only if *cumulative* Medicare Savings were positive.

If the GVPS option is adopted by greater numbers of physician organizations, the undifferentiated physician population would become smaller. Over time, the existing GVPS groups could grow in size as well. HCFA may choose later to end “hold harmless” provisions for groups operating under GVPS (i.e., add concentrated penalties). Criteria could include the number of beneficiaries seen or the number of years operating under GVPS. In the mean time, some groups may choose to face potential penalties in exchange for a higher share of the savings generated under GVPS.

C. Reward and Penalty Formulas

Under GVPS, providers would continue to be paid according to HCFA’s standard payment policies for all types and places of service. There may be additional economic consequences for providers, depending on their own performance, the national performance under MVPS, and other potential long-term cost control policies. This section discusses methods for determining the value of savings, rewards and penalties under GVPS.

Success under GVPS means not exceeding the target rate of increase specified by HCFA, for this satisfies the budgetary goals of the system. Under MVPS, meeting the target avoids penalties to fee updates. Similarly, a starting point for GVPS could be the avoidance of financial penalties for groups that meet their own performance standard. The economic value of that scenario would be the relative value units of the physician and supplier services delivered by the group, multiplied by the difference in the conversion factor caused by the national penalty. A lump sum payment to the group could offset the lost revenue due to lower Medicare payment levels—i.e., a refund of the penalty.

The proposed GVPS models go beyond making technical corrections to MVPS such as refunding the actuarial value of the penalty. Instead, we offer policy options that would revamp the incentive structure created by the payment system, and give providers tangible motivation to manage patient care more vigorously. GVPS could evoke a mind set similar to capitation. In addition, GVPS could give providers a return on the investments that go hand-in-hand with managing care. Providers cannot make adequate investments based on an expected return equivalent to the reductions in updates to physicians’ fees.

The fee-for-service payment system gives more revenue and higher net income to providers that deliver higher volumes and intensities of services. A provider’s net income is based on the difference between reimbursements for services and the cost of providing the services. Capitation changes this by paying providers the full expected reimbursement level even for services that are not delivered. Thus, for avoidable services the provider’s net income

increases by the gross reimbursement amount. Net income increases by reducing utilization rates.

Formulas for rewards and penalties under GVPS could vary the incentives and economic consequences of providers' performance between these extremes. The basic form of payment still is fee-for-service, and rewards and penalties could be very small in comparison. This would represent perhaps a modest departure from the status quo. Alternatively, the rewards and penalties could be potentially large and structured to more closely approximate capitation.

Methods for determining the amount of rewards and penalties could include these four variables:

- ▶ **Refund.** A provider can lose revenue because HCFA has imposed blanket penalties on prevailing payment rates. Penalties under MVPS force all physicians to "pay for" excessive national Medicare expenditure levels. Demonstrating relative efficiency and meeting HCFA's allowable growth rate under GVPS could allow a group to avoid the economic consequences of those penalties. HCFA could, in effect, refund the group's penalty payments.

Refund = (Sum of Relative Value Units for Physician and Supplier Services) ×
(Difference in Conversion Factor(s) due to Penalties)

- ▶ **Medicare Savings.** This is the amount of savings estimated from the observed difference between actual and expected values of RPUPS for the provider. The savings are the difference between the reimbursement rates, multiplied by the number of beneficiaries seen in the performance year.

Medicare Savings_Y = (Target'_Y - RPUPS_Y) × N_Y

where Y is any year a group's performance is evaluated,

Target'_Y is the predicted RPUPS_Y, adjusted for differences in the provider's case mix between the base year and the performance year, and

N is the number of Medicare beneficiaries who received physician services from the group (i.e., the denominator in RPUPS_Y).

- ▶ **Patient Capture Ratio (PCR).** This is the proportion of reimbursements to all providers that went to the physician group operating under GVPS, for patients included in the measure of RPUPS. The PCR may be defined only in terms of physician and supplier services, or may be expanded to include all Medicare-covered services, in accordance with the scope of services included in RPUPS. Accordingly, a health system that owns a

hospital might include payments to its hospital in the numerator (and the denominator) of the PCR.⁷

- ▶ **Sharing Rate.** HCFA could choose a particular Sharing Rate, either alone or in conjunction with the PCR. Using a Sharing Rate alone would recognize the equivalent value to Medicare of savings from internal efficiencies by the provider (i.e., reducing utilization within its own system), or external efficiencies (e.g., reducing utilization rates of an unaffiliated hospital). Using a Sharing Rate with the PCR could approximate more closely a provider's actual forgone net income under GVPS, rather than forgone gross revenues.

Thus, we specify the potential formula:⁸

$$\text{Reward} = \text{Refund} + (\text{Medicare Savings} \times \text{Patient Capture Ratio} \times \text{Sharing Rate})$$

GVPS would induce efficient practices if the reward system was like capitation, in which reducing utilization *increases* net income. The formula for sharing the savings could offset reductions in revenues by giving the group a sufficient proportion of total observed savings. One option would be to:

- ▶ Pay to the physician group the amount equal to the Medicare Savings times the Patient Capture Ratio. (This sets the Sharing Rate to 1.0).
- ▶ HCFA would keep the remainder of the savings, i.e., Medicare Savings times the inverse of the PCR.

$$\text{Reward} = \text{Medicare Savings} \times \text{Patient Capture Ratio} \times (1.0)$$

This approach would return to the physician group all revenues forgone under fee-for-service resulting from utilization rates that were lower than actuarial projections would indicate for “average physicians” seeing that population of patients. Physician groups would be treated as “virtual HMOs” paid a “virtual capitation” that is prorated according to the proportion of the

⁷We are exploring, conceptually and empirically, the implications of expanding the PCR to include other services.

⁸ Refund refers to the actuarial value to the group of the national fee penalties. This could be added to any of the variations on reward formulas discussed here.

patient population captured by the group. HCFA would keep the remainder of the savings.⁹ The physician group would not have expected that revenue in any event.

Other values could be given to the Sharing Rate. For example, HCFA could:

- ▶ Reduce the Sharing Rate to some fraction.

$$\text{Reward} = \text{Medicare Savings} \times \text{Patient Capture Ratio} \times (0.5)$$

This would move away from the incentives closely resembling capitation and toward a system of compensating groups for lower net income. Another option would be to:

- ▶ Pay to the physician group a specified or negotiated Sharing Rate, without regard to the PCR.

This amount could be set rather arbitrarily, such as one-half, and applied to all physician groups.

$$\text{Reward} = \text{Medicare Savings} \times (0.5)$$

We prefer the option that bases payments to the physician group on the Patient Capture Ratio. One very nice property of this approach is that using the PCR to gauge rewards would prevent HCFA from overpaying rewards when beneficiaries are seen by more than one provider under GVPS. Thus, any number of groups could be operating under GVPS, with many seeing the same patients, and total reward payments would not be excessive due to “double counting.”

However, there are issues that need to be considered from the provider’s perspective about using the PCR. Groups that helped to avoid outside utilization, or that moved outside utilization to inside, would increase their PCR and their share of the savings. This seems to be an acceptable arrangement. However, reducing *inside* utilization rates (enhanced internal efficiency) would increase the Medicare Savings but decrease the PCR. To address this, HCFA could place a floor on the PCR, for example, its value in the base year. Similarly, HCFA could use the group’s PCR in a certain year (e.g., the base year to start) in the reward formula for a few years (e.g., three to five years), then reevaluate or rebase the parameters of the formula using an updated value of the PCR.

If the policy called for concentrated penalties for a group that exceeded its performance standard, HCFA could be take a similar approach.

⁹ A hypothetical physician group with an extremely high Patient Capture Ratio would resemble an HMO. Perhaps HCFA could limit the share paid to a group to 95 percent, thus emulating the implied savings to HCFA under risk contracting.

Penalty = Medicare *Losses* × Patient Capture Ratio × Sharing Rate , where

$$\text{Medicare Losses} = (\text{RPUPS}_Y - \text{Target}'_Y) \times N_Y,$$

where *Y* is any year a group's performance is evaluated,

Target' is the predicted RPUPS_Y, adjusted for differences in the provider's case mix between the base year and the performance year, and

N is the number of Medicare beneficiaries who received physician services from the group (i.e., the denominator in RPUPS_Y).

Here again, HCFA must choose values for those variables that reflect the appropriate incentives and risks for participating groups. The PCR represents a gauge on what proportion of reimbursements for the patient population went to the group, hence its direct benefit from the excessive utilization. For this reason, we believe that PCR would be a useful component of the penalty formula. It would seem reasonable to limit penalties through a fractional Sharing Rate since groups would not have the authority over utilization that comes with enrollment and "lock-in."¹⁰

It may be reasonable for HCFA to specify distinct *combinations* of reward and penalty formulas. For example, a model without any penalty might have a reward formula with a lower Sharing Rate than a model with a penalty, as was illustrated in Table 1. Similarly, larger potential rewards could be provided in conjunction with larger potential penalties.

In addition to measuring Medicare savings each year, HCFA may choose to evaluate *Cumulative* Medicare Savings attributable to a group's performance. In that context, each year the group will make a positive or negative increment to its cumulative savings. Whether a group has accumulated a surplus or a deficit may affect the economic consequences of Medicare Savings in any given year, in terms of rewards or penalties.

D. Transaction Mechanisms

Under MVPS, HCFA imposes penalties by reducing the conversion factors (CF) that determines all physicians' fees. This is administratively simple because there is only one

¹⁰It would be appealing to set targets for a group's own Medicare revenues, for example to determine whether a provider benefited from excessive overall utilization. Although this type of question may be worthwhile in the context of an evaluation, it may be difficult to project expected reimbursement rates for idiosyncratic service mixes. This is discussed further in Appendix C.

conversion factor per category of services—surgical, non-surgical and primary care. A disadvantage is that penalties are deferred two years into the future.

The mechanism of adjusting CFs could be applied to GVPS, at least for physician and supplier services. This would result in different CFs for each participating group—many more than the one or two national CFs, but not nearly as many distinct prices as were maintained by carriers under the usual, customary, and reasonable (UCR) system that preceded the Medicare Fee Schedule. In effect, rewarding providers through differential conversion factors would distort the relative values across services. Furthermore, beneficiaries might be given a *disincentive* to use the group because higher CFs presumably would lead to higher copayments. Given those situations, multiple conversion factors may turn out to be complicated and undesirable.

Alternatively, a reward could be accomplished through a lump sum payment to the physician group. After the end of a successful year, and after the financial calculations could be made, the physician group would receive a single payment equal to the value of the reward. Disbursements to physicians within the organization would be an internal matter, although data from HCFA regarding internal and external utilization perhaps could be used to guide decision-making. For example, the group could analyze the causes for savings (by place of service, physician specialty, etc.).

For models with concentrated penalties, a mechanism for achieving those transactions also would be needed. Using conversion factors is not desirable, as discussed above. Because the groups presumably are ongoing businesses with continued involvement in treating Medicare patients, HCFA could administer the penalty by deducting the value of the penalty from future payments to the group. For example, if a penalty of \$50,000 is owed by the group, payments to the group in the following year would be reduced by that amount. This would be a simple deduction and would not affect conversion factors or relative values for individual services.

In addition to the specific transactions with the groups, there may be other economic consequences affecting physicians generally. Decisions about sources of funding for rewards, and the amount of savings kept by Medicare, may affect the conversion factors for all physicians. A problem could arise under GVPS if it is necessary to know what would have happened in terms of RPUPS values for the group *in the absence of GVPS*. In the reward and penalty formulas discussed above, the Medicare Savings (and Losses) were defined as the difference between actual and expected RPUPS. Granted, the savings may be real and even attributable to the group, but some of those savings may have occurred in the absence of GVPS. On the other hand, the observed market rate of increase may have been an *underestimate* of increases that would have occurred in RPUPS for a given provider. In other words, GVPS may have induced even larger savings than are apparent.

Rewards to groups for savings that would have occurred anyway can be justified on equity grounds—at the very least rewards up to the actuarial value of national fee penalties.

Rewards to groups for savings that would not have occurred with GVPS are appropriate incentive payments. However, rewards to groups for savings that would have occurred anyway, although difficult or impossible to estimate, would increase Medicare costs relative to the program without GVPS. Therefore, HCFA needs to consider the policy with respect to its implications for physicians generally: It is likely the conversion factors for all physicians would need to be reduced by some amount to recoup some or all of the value of rewards to successful groups. The argument may apply to penalties as well: Special penalties imposed on groups for relatively high growth rates could offset a portion of excess payments that would otherwise be financed by broad-based penalties.

Whether a reward is for equity or to induce efficiency, HCFA could adjust its accounts under MVPS when determining the national conversion factors. The adjustment could:

- ▶ **Add back the Medicare Savings amount to the national expenditure totals.** This would effectively remove the successful GVPS groups from the evaluation of national performance, because each group would be imputed an average rate of increase. Thus, HCFA could assess the collective performance of the remaining, undifferentiated physician population.
- ▶ **Add back just the amount of the Rewards to the national expenditure totals.** Under this approach, the nation would still get some credit for the successful performance of groups. However, HCFA would finance the actual rewards through lower fees to physicians generally.

Another type of difficulty arises because RPUPS may be defined in terms of all Medicare services, not just physician and supplier services. For Part A and other Part B savings, HCFA needs another mechanism to finance rewards and to focus penalties more on the inefficient providers. Currently, there is no framework corresponding to MVPS for facility and other non-MVPS services. The analog to MVPS fee updates would be PPS updates, or allowable cost increases for cost-reporting facilities. As HCFA currently considers many factors when setting updates for these costs, the reward system under GVPS could become another relevant factor in those determinations.

E. Possible Implications

The concept of a reward is introduced in GVPS for two reasons. First, it permits a significant realignment of incentives to the provider that is more akin to managed care than fee-for-service. Second, it allows for a return on a provider's investments in managed care systems, which might be more costly than the discounted present value of future fee penalties, but very worthwhile in relation to potential Medicare cost savings.

Under MVPS, physicians generally will be subjected to penalties to the extent that national Medicare physician expenditures fail to meet target levels. Physician groups operating

under GVPS that improve their own efficiency also reduce total Medicare expenditures. Resulting decreases in volume and/or intensity of services are financially beneficial to Medicare—even if the changes are not sufficient to have overall group performance meet target levels under GVPS.

There are several basic objectives we set out to meet in developing GVPS options, including to further equity and efficiency through the payment system and to assure budget neutrality for Medicare. If HCFA pays physician groups under GVPS according to their estimated savings, other physicians are likely to be made worse off for reasons that are consistent with the attractiveness of GVPS. Specifically, providers that show lower rates of increase can be better off through GVPS. At the same time, the average performance of remaining physicians will be worse because the more efficient providers will be underrepresented in the remaining physician pool.

The structure of incentives under GVPS can have implications for the degree of income transfer among physician groups. Larger reward payments would lead to lower revenues for other providers. Model parameters, such as the definition of the PCR, can affect incentives and economic consequences for providers. For example, HCFA will need to determine the conditions under which hospital services can be included in the PCR. Including hospital services within the PCR for a physician group that owns a hospital may bolster greatly the incentives to reduce admission rates. However, a physician group that does not own a hospital, but reduces admission rates, would not necessarily be adequately rewarded. HCFA may allow circumstances, other than ownership, in which the PCR would include hospital and other services. Alternatively, HCFA could adjust the Sharing Rate to magnify the incentives for efficiency.¹¹

IX. Eligibility Criteria for GVPS

A. Linking to Purposes

Deciding upon criteria for participation under GVPS requires consideration of other aspects of GVPS, including the goals of the system, the scope of services involved, and the reward and penalty structure.

- ▶ **Equity in payment.** GVPS could be used to improve equity by rewarding efficient practices and focusing penalties on inefficient practices. Assuming the more equity the better, HCFA could aim to disaggregate the physician population as much as is feasible. Furthermore, HCFA may wish to consider mandatory versions of GVPS that would further sharpen the reward and penalty structure associated with Medicare payments.

¹¹Values for the Sharing Rate in excess of 1.0 would tend to override limitations imposed by the PCR in circumstances such as these.

- ▶ **Pervasive incentives for efficiency.** In general we could expect greater total savings as incentives for efficiency are applied more universally. With more providers participating, greater proportions of the Medicare population would come into utilization measures of groups under GVPS and the aggregate “patient capture ratio” would increase. Aiming for maximum penetration of GVPS might involve establishing only minimal eligibility criteria. HCFA could limit criteria to those required for validity of the models.
- ▶ **Broad-based managed care initiatives.** Alternatively, HCFA could use GVPS explicitly to build up a network of providers that have the organizational capability to manage total patient care. Providers differ in their ability to manage care. These differences can be associated with a number of organizational and experiential characteristics that HCFA could use to select as eligibility criteria.

HCFA may use GVPS as a step toward managed care and preferred provider arrangements. Accordingly, criteria for selecting qualified groups may be more substantial right from the outset of GVPS. These could include assurances of clinical quality and patient satisfaction, for example. Furthermore, if financial penalties are involved, the group may need to demonstrate adequate financial standing. HCFA already has developed substantial criteria for monitoring managed care organizations, as described in its *Contractor Performance Monitoring System*.

B. Basic Eligibility Criteria

There are certain eligibility criteria that may be necessary for the utilization measures and performance standards to be valid and stable. These can relate to characteristics of the group itself, or to aspects of the patient population seen by the group. These include:

- ▶ **Formal definition of the group.** We have referred to “groups” participating under GVPS, and to integrated health care delivery systems. Existing physician group practices and health systems may be willing and able to elect separate performance standards.

However, there may be other arrangements among providers that come about in order to participate under GVPS. For example, several physician groups may apply to operate under a separate GVPS that is based on their combined experiences. HCFA will need to formalize agreements between separate organizations that are named to operate together under GVPS. The group practices, solo physicians, facilities, and other providers whose Medicare Provider ID Numbers are to be included in the definition of the group need to formally agree to this arrangement. Any formal relationships will have to be clarified and deemed legally acceptable. For example, there may be legal restrictions on referring patients for services when the referring physician has ownership interests.

- **Specifications for internal sharing of rewards and penalties.** In addition, the organization(s) need to have internal arrangements for accepting and disbursing lump sum reward payments from HCFA. Similarly, written contracts between HCFA and the organization(s) would need to specify methods for the group to settle penalty situations. Even if HCFA “receives” the penalty payments by withholding of future reimbursements to all providers in the group, there may be a need for guidance about the distribution of those withholdings.

For example, a GVPS group may be comprised of four physician group practices. Penalties (and rewards) may be distributed in proportion to their Medicare revenues in the performance year. However, if one of the groups gets much bigger in the subsequent year it may bear a disproportionate burden if HCFA withholds reimbursements from all the providers until the penalty is paid.

- **Size.** There are likely to be dimensions of size on which HCFA must specify a minimum value for a group to participate. For example, HCFA could not set performance standards for a solo physician who sees between one and ten Medicare patients per year. Average resource consumption for the patients in one year would not be expected to form a reliable baseline and performance standard for that physician’s future patients.

That example illustrates two size dimensions that are likely to be important criteria for eligibility: the number of Medicare patients seen and the number of physicians in the group. There may need to be a large number of patients included in the measure of average resource consumption (i.e., RPUPS) because of the relatively large variance associated with reimbursement amounts at the individual level. There may need to be a minimum number of physicians in the group so that arrivals and departures or shifts in clinical emphasis do not inordinately affect the group’s case mix.

Size may be important for a somewhat different reason. HCFA could decide to limit the number of groups operating under GVPS for administrative reasons. For each GVPS group, HCFA would have to retrieve relevant data elements and calculate parameters such as the Medicare Savings and the Patient Capture Ratio. Although there is a correlation between the size of the group and the number of data elements, it may be practical to limit the steps to larger groups. This does not necessarily preclude participation by any provider, but implies that interested providers may need to pool their experiences into larger groups in order to “make the cut.”

If HCFA limited eligibility criteria to these basic requirements, an enormous variety of provider groups may be eligible to participate. This is desirable to the extent that HCFA would like to have maximum application and maximum total effect of GVPS. In addition, the basic criteria could allow expensive single specialty providers to participate, even those without a

primary care emphasis.¹² This also may be desirable since large portions of Medicare reimbursements are for specialty services, the providers of which could manage *their own* services. Creating incentives for a wide range of providers to manage their own practices could be a positive result of GVPS.

C. Criteria for Managed Care and Preferred Provider Initiatives

A different tact for HCFA could be to identify types of organizations that could manage, or even provide, a full range of services. The utilization measures and performance standards described in this report are based on all reimbursements for patients, including for services by other providers.¹³ HCFA may undertake a definitive assessment of a group's capacity to manage the full range of Medicare-covered services. This may require several layers of criteria.

The suggested criteria presented below are based on the assumption that a very large number of provider groups will want to participate in the program. On the one hand, HCFA may want to develop fairly restrictive criteria at the outset so as to best assure the success of the program and to provide the necessary administrative oversight. On the other hand, Medicare may not be best served by requiring groups to meet stringent selection criteria at the outset, and thus excluding potentially successful groups from applying for GVPS. In this situation, criteria should be viewed as recommendations, deviances from which could be justified by groups and feasibility for participation evaluated by HCFA.

With the growth of managed health care plans, large multispecialty medical groups have had to compete on price with other providers for contracts. The contracts establish the prices that the plans will pay for provision of comprehensive services, and the requisite assurances about the quality of the services. While the practices are given varied economic incentives (withholds, capitation payments or bonuses) to operate efficiently, these providers are selected by managed care plans based on relatively standard criteria and procedures. HCFA already contracts with HMOs and other managed care organizations and has determined a number of criteria for assuring quality of care. These principles, and perhaps criteria used by other payers, could be adopted by HCFA to help regulate delivery patterns and utilization management under GVPS.

¹² The more specialized or abnormal is the mix of services in a group's utilization measure, the more necessary it may be for HCFA to adjust projected growth rates. (See Appendix C, Section G).

¹³ We gave consideration to measuring average resource consumption based on reimbursements to the provider only. This definition was rejected for three reasons: too many threats to the validity of performance standards (i.e., changes in a provider's specialty composition or scope of service); the difficulties measuring actual savings to Medicare; and the willingness of providers in our advisory committee to understand and accept models with reimbursements to all providers.

Even though groups will have incentives to manage the services used by their Medicare patients, GVPS models do not necessarily require beneficiaries to make any formal commitments to the groups as their patient care managers. The groups may be expected to institute procedures and practices that enhance consumer satisfaction and loyalty because beneficiaries can change providers. However, an argument for establishing more elaborate eligibility criteria, and for monitoring patient satisfaction, etc., is to avoid any inappropriate responses to the economic incentives. For example, a provider may restrict the beneficiaries' freedom-of-choice to utilize providers outside the group practice, e.g., through slow referrals. Therefore, beneficiaries using a group operating under GVPS could be informed of the special arrangements with HCFA.

- ▶ **Composition of the group.** HCFA may wish to limit the groups selected to those with multiple specialties or primary care gatekeepers. Appropriate scope could include primary care physicians, general surgeons, internists, and specialists in such areas as cardiology, oncology and neurology. By reducing the need to refer patients outside their own system, such groups might lose a smaller proportion of their capacity to efficiently manage their patients' clinical needs.

In addition to integrated multispecialty groups, primary care-oriented physician groups, such as family practitioners and/or internists, could function effectively as patient managers. They may have developed patterns of referrals to specialists whom they expect to be efficient. They may eventually, under the aegis of GVPS, develop more formal alliances with preferred providers that would further enhance the delivery of cost-effective care.

- ▶ **Accessibility standards.** Because managing care can require swift responses, HCFA may wish to assure that Medicare beneficiaries have access to medical care in the group on a continuous basis. Accordingly groups could be required to demonstrate that triage systems are in place so that urgent visits (as well as symptomatic visits) may be scheduled on a timely basis. Medicare beneficiaries should be able to count on 24-hour access to the group practice for emergencies. Groups applying to participate in GVPS should be positioned to provide appropriate telephone coverage when physician offices are closed.

The group should have adequate capacity to assume responsibility for non-hospital physician services. It would be most preferable if the group practice had the ability either through its own physicians or through established referral mechanisms to provide all physician services covered in the performance standard.

- ▶ **Quality of care standards.** It would be reasonable for HCFA to make efforts to assure that Medicare beneficiaries receive appropriate and timely care. Groups may be required to have an on-going quality assurance program to monitor specific clinical and non-clinical outcomes. Another desired feature would be a system to measure consumer satisfaction and complaints about services.

Other management systems could help to indicate quality of care. Groups might be required to have systems to monitor each physician's provision of care, backed up with standards for educating or removing physicians that do not perform according to established guidelines. It may be considered an advantage if the group practice had in place a system that provides for a uniform medical record for each Medicare patient seen. Rigorous credentialing procedures and appropriate board certification requirements for the group's physicians could enhance the group's ability to deliver quality care and enhance its standing as a GVPS candidate.

- ▶ **Patient management practices.** There are other requirements HCFA may consider to assure that the group is capable of providing or monitoring care for all Medicare-covered services for the patients it sees. It is recommended that the group be able to demonstrate that its primary care providers are capable of serving the Medicare beneficiaries in multiple sites of service, such as offices, hospitals, nursing homes and the beneficiaries' homes. For example, the group's ability to institute and monitor the use of home health services, post-acute services in nursing homes, and durable medical equipment would be considered further evidence of its potential to succeed under GVPS.

A system for following patients upon discharge from a hospital and for monitoring the health status of patients who are at a higher risk of hospitalization or judged to be medically unstable would be a desirable feature in terms of evaluating the group's ability to provide high-quality, efficient care. For example, groups might use case managers to oversee patients with specific illnesses over an extended period of time. Groups may want to demonstrate their ability to institute and implement treatment protocols, especially those relevant to the care of Medicare beneficiaries.

HCFA could require a baseline indicator of patient management, such as a group's involvement with evaluation and management services for Medicare beneficiaries. This criterion may be set as a dollar threshold, which would also help to limit participation to larger groups. For example, groups may be required to have provided at least \$100,000 in Medicare-covered services for evaluation and management services.

HCFA also could require a baseline level of involvement with Medicare patients seen, such as a minimum Patient Capture Ratio for total services, physician services, or evaluation and management services. For example, participating groups may be limited to those with at least a 20-percent share of services to patients seen.

- ▶ **Data and information systems.** Part of the process of managing care, shaping practice patterns, and achieving economic success involves the timely collection and analysis of quality, utilization and financial data. Under GVPS there could be an exchange of data between a group and HCFA, in order to track utilization and report performance relative to target levels. Important types of information to process could include:

- Utilization rates for the group's Medicare patients in comparison to patients seen by non-GVPS providers, including visits, tests, procedures, and hospitalizations,
- Hospitalization rates by diagnosis, length of stay and number of physician visits,
- Utilization rates by physician and other providers,
- Referral rates to other group physicians and to outside practices,
- Revenues and expenses by type of service,
- Mortality or hospitalization rates for selected diseases,
- Utilization rates for selective preventive services (e.g., screening mammography and flu shots), and
- Descriptive reports on all patient satisfaction surveys done and details on waiting times to be seen for different type of visits (symptomatic, non-symptomatic, urgent, etc.).

The nature and extent of Medicare information that is shared with groups needs to be determined in light of any legal or ethical issues. Specific boundaries will be needed regarding how much detail is useful or permissible. For example, exchanging extremely specific information, such as utilization patterns for specific beneficiaries or specific competing providers, may not be desirable or even administratively practical.

X. Provider Responses to GVPS

Making available a GVPS option will lead physician groups to consider many decisions, including possible strategic responses. GVPS could give groups the incentive to manage their patients' care more efficiently. The strategies that physician groups use to achieve efficiencies are likely to be influenced by a multitude of factors, including characteristics of the organization and the market environments. The following section describes potential provider responses to GVPS, including:

- ▶ Deciding whether to elect GVPS,
- ▶ Developing an action plan, and
- ▶ Managing performance

A. Deciding Whether to Elect GVPS

The reward and penalty options implemented by HCFA under GVPS would influence a group's decision whether or not to participate. If there are potential rewards and relatively little risk involved, most or all groups may desire to participate. Under those circumstances, HCFA would probably need to specify clear eligibility criteria for participation in order to obtain a manageable number of candidates. However, options that could impose financial penalties on groups that failed to meet performance standards may cause a substantial proportion of groups to decide not to participate. If participation requires concrete actions on the part of participants, such as investing in managed care systems, then groups may have to weigh the prospects of success against the expected costs of those actions.

1. Meeting Eligibility Criteria

There are two levels of eligibility criteria suggested for groups willing to participate in GVPS (see Section IX). One level relates to administration and general feasibility, and second level relates to apparent ability to manage care. To meet one or the other set of criteria, some groups may need to combine their efforts. For example, individual physician practices could pool their experiences to meet criteria related to size or scope. Similarly, physician organizations such as local or specialty associations may sponsor an arrangement by which physician practices could combine their efforts.

Even beyond minimum thresholds of size for adequate stability of measures, larger organizations may be in a better position to make capital investments in managed care structures and personnel. Small groups could be less able to absorb the costs of managerial and administrative support and the increased start-up capital expenditures for new cost-saving technologies. Furthermore, in order to manage patients effectively and efficiently, groups may find it necessary to be in direct control of the resources needed to provide a wide spectrum of services. In this way, they would benefit from economies of scope. For example, interdepartmental linkages would facilitate the efficient triage of patients to appropriate service facilities and services. It is expected that groups opting for GVPS would have an incentive to expand the scope of their services through formal or informal mechanisms in order to provide a wider range of services within their own system.

Another important indicator of a group's market position is its Patient Capture Ratio (PCR), which is the percentage of services (measured in dollars) provided to these patients directly by the group itself. For a given level of RPUPS, a higher capture ratio means the group is collecting a larger proportion of dollars, and suggests that the group is better able to control more of the patients' services.

2. Service Categories for RPUPS

Groups may have the option of electing GVPS for MVPS services only, or for all Medicare services. Reimbursement amounts, potential savings, and therefore potential rewards are larger for all Medicare services. All-inclusive performance standards may be appropriate for large groups with integrated delivery systems. Performance standards based only on MVPS services may be preferred by some smaller or less integrated organizations. However, the definition of services included in the PCR could affect the attractiveness of GVPS depending on the scope of services. For example, if the physician group was part of an organization that owned a hospital, including hospital services in the PCR could create financial incentives to limit facility costs through lower admission rates.

3. Reward and Penalty Structure

Financial incentives provide a powerful rationale for groups to expedite the adoption and incorporation of methods for providing more efficient care. The more that groups can anticipate receiving direct financial rewards, the more they may be expected to invest in innovative strategies to be more cost-effective. In addition, provider response to the reward and/or penalty structure also might be influenced by the potential size of the penalties. Some groups may choose to assume the risk of a penalty if the potential for reward would be even greater.

B. Action Plan

Depending on the eligibility criteria, groups participating in GVPS already may be at or near the cutting edge in terms of having the infrastructure and managerial expertise to plan for and deliver efficient care. However, under GVPS, they might re-consider their current situation and recognize potential opportunities for making further gains in cost-effectiveness and/or market share. This section discusses some of the actions a group may plan to undertake under GVPS.

Using average utilization and patient capture ratio as two dimensions describing groups in the Medicare market, a group can be classified according to the following matrix:

| MEAN RPUPS DOLLAR VALUE | | | |
|-----------------------------|------|-----|------|
| PATIENT CAPTURE RATIO | | low | high |
| | high | A | B |
| | low | D | C |

The PCR reflects the group's degree of involvement or control over services and expenditures. Average reimbursement rates reflect two factors: the relative health status or need of the patients, and the degree of efficiency in service delivery. A group's location in this matrix at the start of participation under GVPS may affect its priority objectives and its strategies. For example, a group with a low capture ratio could take steps to raise the percentage of Medicare reimbursement dollars going to the group itself. An overall strategy may involve intra-organizational and inter-organizational measures in both managerial and clinical areas. At the clinical level, groups may embark on strategies to change their product mix in response to market demand, modify scheduling to accommodate the needs of its patients, and change staff specialization patterns. Groups may embark on more joint ventures and planning in which they will share both production facilities and support staff.

Breaking down the PCR into different categories can furnish additional useful information regarding utilization for groups. For example, Figure 11 shows the percentage of patients categorized in deciles of within-group utilization for a Group X, a Type B organization (high PCR, high RPUPS). Note that utilization refers to physician and supplier services only. This group's overall PCR was 69.1 percent. Over one-third of patients had all of their utilization within the group, and another 14.5 percent had more than 90 percent of their utilization within the group. Fully two-thirds of all beneficiaries ever seen at Group X had more than 70 percent of their utilization within the group. This information can be analyzed in conjunction with the within-group reimbursements and RPUPS for each category of patient. For example, Figure 12 shows the distribution of within-group reimbursements (darker, lower line) and RPUPS (upper line). Putting the two graphs together, we may infer that Group X provides a large amount of tertiary care. As described above, such a group's strategies include prioritizing alliances with primary care providers and vigorously pursuing internal measures to improve managerial and clinical efficiency.

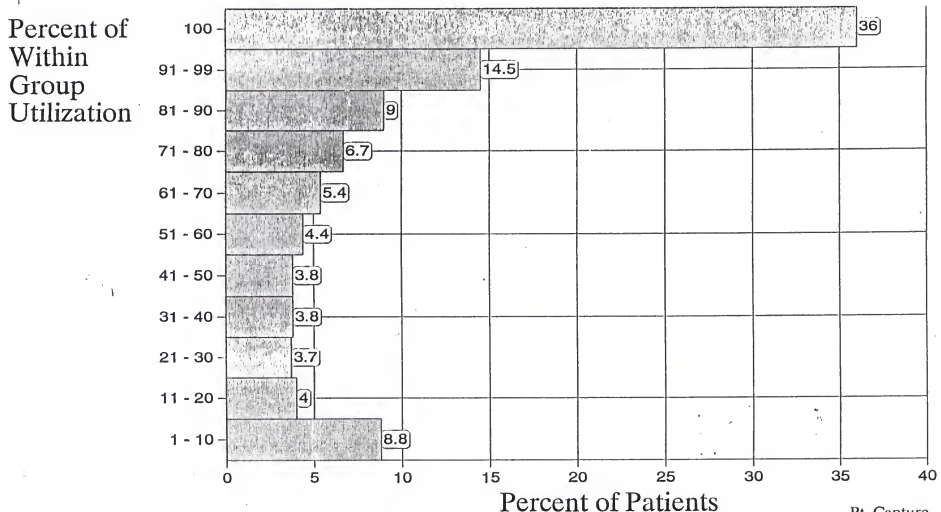
Group Y's PCR and RPUPS show patterns of a Type D organization, (Figures 13 and 14). It's overall PCR is 21.9 percent. The vast majority (86.3%) of beneficiaries receive 70 percent or more of their care elsewhere. Viewing this information in conjunction with within-group reimbursements and RPUPS, we may infer that Group Y is essentially a provider of primary care for patients who in general appear to need less services than patients seen by Group X. As described above, such a group may undertake to improve informal or formal affiliations with providers of primary care, in order to better manage their patients' utilization that currently occurs outside their system.

If the PCR is used in the reward structure, groups would have an incentive to manage more of the patient's care in order to benefit from the comparative efficiency of their system, and to increase their share of the reward. There could be similar incentives to see more patients, since this could increase net income and provide a larger base for generating savings and rewards. However, seeing more patients could, at least at first, tend to lower the average capture ratio because new patients might tend to ease into the practice over time. It is expected that groups will implement additional strategies to increase market share and reduce costs both within and outside their system.

Figure 11

GROUP X

Annual Within Group Utilization of Part B Services (in Dollars), Medicare Patients

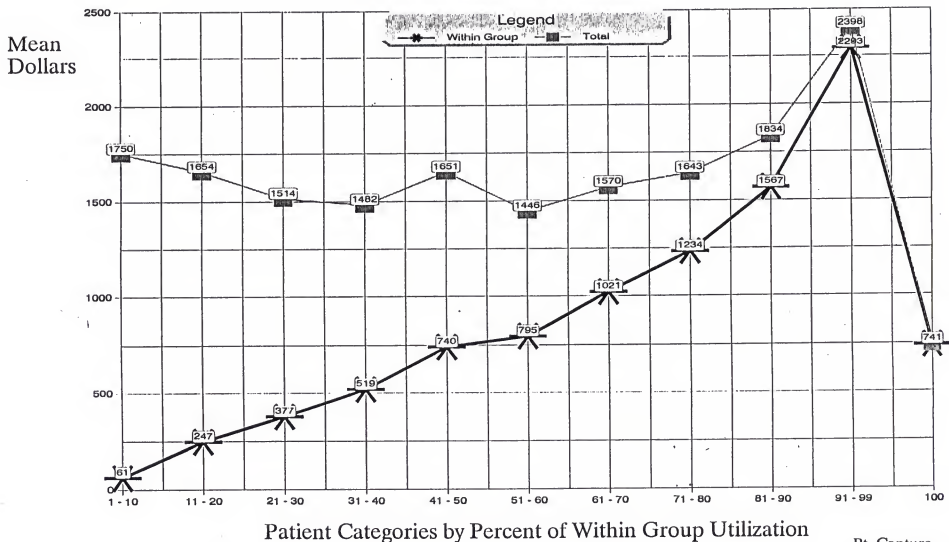


Pt. Capture
Ratio: 69.1%

Figure 12

GROUP X

Mean Annual Group and Total Utilization of Part B Services (in Dollars),
Medicare Patients



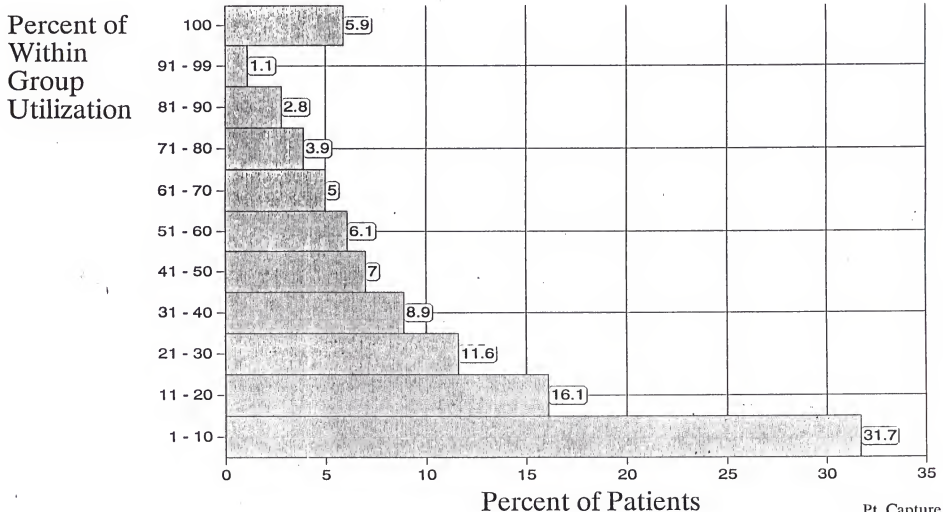
Pt. Capture
Ratio: 69.1%

SOURCE: Analysis of 1992 National Claims History Data by Institute for Health Policy, Brandeis University

Figure 13

GROUP Y

Annual Within Group Utilization of Part B Services (in Dollars), Medicare Patients

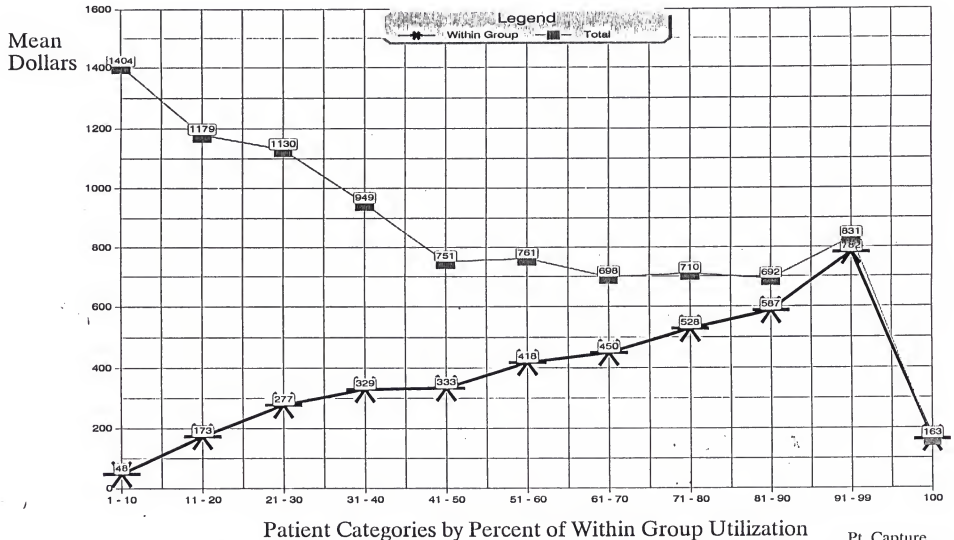


Pt. Capture
Ratio: 21.9%

Figure 14

GROUP Y

Mean Annual Group and Total Utilization of Part B Services (in Dollars), Medicare Patients



Pt. Capture Ratio: 21.9%

SOURCE: Analysis of 1992 National Claims History Data by Institute for Health Policy , Brandeis University

1. Increasing Market Share

No health care organization is impervious to the external environment in the current climate of cost-control. Under GVPS, groups are expected to vigorously study, explore, and analyze their current position in the marketplace, and formulate strategies according to their identified strengths, weaknesses, opportunities, and challenges. One goal could be to increase market share among the Medicare population.

The major strategy that groups use may be to market themselves in terms of cost, quality, and comprehensiveness of services. The strategy may be one of expansion in order to provide patients with a complete palette of services and to have more clout with purchasers of health care. They may engage actively in constructing strategic alliances with other providers of health care in order to provide a completely integrated continuum of care to patients.

With such a strategy, integration is expected to take place horizontally as well as vertically, including across disciplines. Groups may concentrate on acquiring or allying themselves with primary care providers and creating a network of referring physicians. They may follow a strategy of mergers and acquisitions of previously free-standing facilities and service organizations, such as nursing homes, skilled nursing facilities, rehabilitation services, mental health and substance abuse treatment facilities, laboratories, visiting nurse organizations, ambulance services, pharmacies, and suppliers of durable medical equipment.

The market strategies that groups prioritize or pursue more vigorously may be expected to be a function of both their RPUPS and PCR. According to our typology, a Type A group could resemble an HMO because of efficient practices and/or relatively healthy patient populations. They may be expected to focus on increasing their patient base, perhaps actively marketing themselves as high quality and efficient providers. Type B groups may also attempt to increase their patient base, perhaps by actively pursuing mergers with primary care providers and building a strong primary care referral base.

Type C groups, with high RPUPS and low PCR, may be of two types: those with and those without a capacity to provide the necessary services to a patient population with significant and diverse health care needs. Those with the capacity could market their existing services to their patients, and make it attractive for these patients to remain within the system. On the other hand, those groups with patients leaving the system due to inadequate capacity or services will need to make strategic decisions regarding expanding versus strategic alliances. It might be most beneficial for such groups to affiliate with providers of tertiary care, who in turn would be looking for a dependable base of patient referrals. Finally, Type D groups have patient populations with low overall utilization rates as well as low participation within the groups. These groups have an opportunity to explore adding new patient populations to their group, and expanding the scope of their services accordingly.

2. Managing Cost and Utilization

a. Within the Organization

Many health care providers are competing on the basis of cost. Reductions in cost often are achieved within the organization responsible for providing health care. Physicians gain patients by discounting fees, organizations receive volume discounts from pharmaceutical firms, and so on, but beyond a point, cutting costs may affect quality and some say explicit rationing may be imposed. In order to counter such accusations, groups will need to employ tandem approaches to cutting costs and ensuring quality. Organizations will compete and differentiate based on quality, and not simply on cost. This involves such criteria as better access for patients, better process and outcomes, and increased customer satisfaction.

An important component of reducing costs within the system is utilization review. Upgrading information systems in order to track concurrent rather than historical financial and clinical data is expected to become common practice. It is also expected that groups will upgrade their risk management and malpractice avoidance strategies. As with other health care providers, groups have several important reasons for ensuring the completeness and accessibility of their patient medical records. This may be more of a problem with group practices which have multiple sites where care may be delivered to the same patient. Groups therefore will have more incentives to create a single, composite electronic medical record made up of data drawn from all sites. Groups may build systems to construct lifetime clinical records, which in turn would lead to improved efficiency in managing patients seen at their facilities. In addition, groups may build an infrastructure in which patient referral and triage to specialists and other needed services is expedited and ensured. They could formalize on-call scheduling so that no needed specialty or service is ever unavailable, and no urgently required service goes unattended due to a lack of adequate and appropriate staffing. Groups are likely to develop and use group-specific standards of care, which can have legal standing and are therefore protective.

It may be that health maintenance and preventive activities will play a larger role as organizations seek to control costs within their system. A problem is that beneficiaries are not committed to staying with the group.¹⁴ The payoff in terms of reduced costs for health maintenance and preventive activities is in the future, and therefore may not be recognized through lower RPUPS for that group. Patient loyalty is a factor that might counter this trend. By enhancing contact through health maintenance and preventive activities, groups may encourage patient loyalty. Patient outreach for education or follow-up may have the same beneficial effect of encouraging patient loyalty to the group.

¹⁴Because Medicare beneficiaries can disenroll from TEFRA HMOs at any time, they are not committed to staying with a provider in that context either.

b. Outside the Organization

A significant challenge faced by physician groups will be to control costs outside their system. A certain segment of the patient population would be expected to travel, and in enrolled situations, organizations are able to control costs incurred outside their system by various mechanisms such as pre-admission certification, payment only for emergency care, and co-payments or deductibles for utilization other than at preferred sites.¹⁵ In non-enrolled situations such as those faced by physician groups under GVPS, these approaches may not be appropriate or feasible. However, we are exploring the possibility of allowing groups to embellish the services available to Medicare beneficiaries (e.g., through discounted pharmaceuticals) that may function like coverage limits to foster loyalty. Presumably, groups could finance the extended benefits through expected (or past) reward payments.

At the individual patient level, groups will need to find ways of educating patients about treatment options outside the system in order that they may make informed decisions. For example, patients seeking procedures elsewhere could be given decision support. Patients who inform their providers within the system that they intend to travel could be supplied with travel advisory packets that include education about compliance with medications and sources of preferred care. A more global strategy would involve authorities outside the group, such as HCFA, that could profile providers in the area for appropriateness and efficiency of care, so that all providers in a market area could be held to a single standard of care. For example, gastrointestinal endoscopy and cardiac catheterization are two frequently mentioned procedures for which patients may leave the system in questionable cases. Providers of these services outside the system could be profiled and feedback supplied if utilization were higher than expected for that patient population.

Again, where groups fit in the typology may influence the strategies they find most useful. Types A and B groups do not need to prioritize control outside their organization, since they already control a large proportion of their patients' utilization. Type C organizations may find themselves in the most vulnerable position of all, as they manage a group of patients who have high utilization that is incurred mostly outside the system. These groups may need to pursue most actively a strategy of strategic alliances with other providers of care for their patients, and include contractual arrangements for aligning incentives among themselves. Although the stakes are lower for Type D organizations because of their patients' low RPUPS, they too may be served best by encouraging affiliations and mergers with other area providers.

Questions that all organizations face as they attempt to control costs outside their system will include the best affiliations that they may make. For example, if such arrangements do not

¹⁵From the beneficiary perspective, an advantage of GVPS is that traveling and seasonal migration do not interfere with supplemental insurance benefits. HMOs may prohibit membership if a beneficiary is out of the service area for extended periods.

already exist, should they seek to affiliate with hospitals, primary care physician groups, specialty groups, and/or other types of providers? How formal should these arrangements be? What incentives should be shared, and what are the legal issues involved, especially surrounding anti-trust and restriction of trade? How can physician leaders safeguard against threats to quality that may occur in the pursuit of cost control? Finally, how can groups best manage the risk associated with having finite control over utilization outside their system? Groups may be served best by encouraging and facilitating utilization within their own system of preferred providers.

3. Care Management Strategies

Health care organizations have traditionally held a service concept that advocates practice management. Many of them have sophisticated systems for managing the resources necessary to run their practices and controlling practice costs. Needing to manage the entire patient in order to compete reflects relatively recent changes in the marketplace. Similar incentives would exist and be extended under GVPS.

Some groups may utilize the gatekeeping concept in order to manage (but not necessarily restrict) patient access to specialty care. Assigning patients to a primary care provider could enhance patient loyalty as well. In certain cases, specialists can serve as gatekeepers to provide care that is more effective and efficient. Commonly cited conditions include end stage renal disease, diabetes, ulcerative colitis, and several cardiac and pulmonary conditions. Therefore, some groups may be expected to enhance specialist referral and consultation within their organizations, and develop efficient triaging systems.

Under GVPS, groups will have an incentive to provide services in the most cost-effective way possible, and their recruitment and staffing mix is expected to reflect this. The appropriate use of physician substitutes has long been recognized as a legitimate method for reducing costs and improving patient satisfaction. GVPS groups also may expand the role of non-physician providers in reducing costs and fostering quality. For example, groups may use pharmacists to educate patients, fostering patient compliance (especially for chronic conditions such as asthma, degenerative joint disease, pain management, and diabetes), and thus reducing long-term costs associated with non-compliance.

Groups may analyze the full range of health care needs of their patient population, and explore ways to fulfill these needs. Groups will need to consider "make or buy" decisions, i.e., whether to provide additional services internally, or rely on external providers. The volume of patients needing a particular service likely will affect which strategy an organization follows.

C. Managing Performance

1. Management Control

Under GVPS, groups will have a greater incentive to manage the behaviors of individual providers and patients. Groups may enhance systems of bureaucratic control, such as protocols and guidelines, peer review, monitoring, training and education, and utilization review. Internal “market” controls also may be intensified, such as linking rewards and penalties to productivity and performance. Some groups may inculcate a form of control through group membership and its implications of living up to a certain professional and personal standard, adhering to a certain philosophy of care, and acting responsively to the mandates of organizational leadership. Some specific examples of how control may be exerted follow.

a. Practice Guidelines

Examples of clinical bureaucratic control systems are clinical guidelines, clinical pathways, standards of care, and practice protocols. Many already exist and are continually being refined as physicians and nurses gain knowledge from recording their own experiences, observing and consulting with colleagues, and studying recent advances. However, there is often considerable variation among individual providers, and even from site to site. In order to achieve efficiencies, some organizations may develop, customize, and disseminate clinical guidelines on a continual basis. Groups may direct some clinical guidelines mainly at physicians. However, a solid organizational, cross-functional infrastructure is vital to the successful implementation of many types of interventions. The nursing profession has provided leadership in this area for many years.

b. Feedback Mechanisms

Many existing groups have feedback mechanisms so that physicians can evaluate their performance, both in absolute terms and relative to others. Currently, the nature of routine feedback to physicians varies widely. The trend is to provide utilization data, usually to the department head, who then shares it with individual physicians in the department. For example, physicians may receive information about the number of patients and case mix, number and types of procedures, average lengths of stay, and ancillary usage. Groups will need to provide accurate and up-to-date data to physicians on clinical, as well as financial, aspects of patient care.

c. Compensation Systems

Physician compensation systems can be based on fees generated or a simple salary, with either mode linked to productivity, patient satisfaction, and other items such as teaching, research, and administrative responsibilities. Often the method of compensation reflects the culture and values of the organization, and changing the system can cause internal conflicts. Organizations that adjust compensation according to productivity have had difficulty when payers create opposing incentives. GVPS would align incentives under Medicare with incentives from other managed care payers.

2. Evaluating Performance

a. RPUPS

The primary financial goal and performance measure under GVPS is meeting the target rate of increase in RPUPS. Unfortunately, precise measurement of performance will occur after the close of each performance year. However, GVPS is intended to evoke long-run changes in health care delivery patterns. Many of the management strategies required for success under GVPS are capital and systemic investments. Presumably, most existing organizations will have arrangements with many other payers that permit rapid assessment of short run as well as long run benefits. On the other hand, groups may find it helpful to monitor their own practices, such as revenues per patient seen, to track performance periodically during the performance year. In addition, they can survey patients regarding utilization of other providers, perhaps in conjunction with patient satisfaction surveys.

An important and unresolved issue for GVPS is the nature and extent of data sharing between HCFA and the groups. Even the minimum administrative requirements for HCFA are substantial, and adding frequent data reports could add a considerable extra burden. If groups are given information about market level trends in reimbursement rates, they can benefit from making comparisons to their own performance, especially if they also are able to analyze differential trends by type and place of service.

b. Patient Capture Ratio

Another critical success factor for groups could be the PCR. There are at least three possible reasons for a group to strive for higher PCRs over time. First, increasing the services provided in-house to the existing patient base translates into higher fee-for-service revenues. Second, groups generally will want to manage services internally, taking advantage of their integration and management controls. Third, the reward formula may include the PCR, meaning that higher PCRs lead to higher shares of overall Medicare savings.

However, the PCR may convey some ambiguities. For example, if a group's Medicare patient population expands and new patients tend to have lower proportions of services within

the group, the PCR would decrease. Similarly, the PCR would fall initially if the group pursues a vigorous policy of cost and utilization control within its own system, with a lag in control of outside utilization. Furthermore, the PCR may not be an accurate reflection of the actual proportion of patient management by the group since it may fail to take informal alliances into account.¹⁶

c. Services Provided

Another way that groups might evaluate their performance is to monitor the types and volume of services they provide, as well as the sites at which they are provided. Groups might evaluate themselves on whether appropriate but less expensive sites are chosen for the delivery of services. An example would be to deliver sub-acute services in a skilled nursing facility versus an acute care hospital. When groups receive data on the proportion of services received within and outside their system, they can use that information to evaluate how successful their patient retention strategies have been, and in what clinical areas.

XI. Simulations of Medicare Expenditures and Rewards to Groups Under GVPS

In order to illustrate the flow of expenditures under GVPS, this section simulates the overall financial impact of implementing GVPS on three parties: Medicare, GVPS groups, and other physician practices. We use a simulation model that incorporates baseline information about Medicare and the groups, along with a set of assumptions about the future evolution of Medicare with and without GVPS. We evaluate various scenarios by changing different assumptions in the simulation model.

A. Analytic Framework

1. Defining Financial Impact

For the purposes of the simulations, financial impact is defined as changes in total Medicare reimbursements for applicable services, plus any reward payments. Before proceeding, it is worth noting what this definition omits. For HCFA, reimbursements plus reward payments really do constitute Medicare's financial bottom line, although HCFA also is concerned with other impacts such as those affecting provider viability or beneficiary access. For providers, changes in reimbursement levels are a less exact measure of financial impact, since provider costs should be considered as well as revenues. For example, if reductions in volume cause a provider's revenues to decrease by \$10 million, this does not mean that the provider's net income

¹⁶As mentioned earlier, an unresolved policy and legal issue is the nature of arrangements between a physician group and other providers that would permit the latter to be included in the group's PCR.

has fallen by \$10 million. In reality, volume decreases would cause a decline in the provider's costs as well as revenues, although not necessarily in proportion. This consideration is more relevant over longer time horizons, where providers have more ability to implement changes in their cost structures.

2. Time Horizon

A time frame of five years is used for the simulations. For shorter periods, the effect of GVPS on the rest of the Medicare program would be less apparent, as there would be less time for interactions to come into play.

3. Relevant Services

The simulation model concerns the impact of GVPS on reimbursements for all Medicare services (Parts A and B).

4. Defining a Base Case

The approach taken is as follows:

- ▶ A base case GVPS scenario is defined, comparing the distribution of reimbursements under GVPS to that which would be found without GVPS.
- ▶ The sensitivity of the results to changing assumptions is examined. This involves starting from the base case scenario and varying each major assumption in turn. For example, what if GVPS providers were paid a higher share of the savings achieved, holding other assumptions at base case values?

B. Assumptions

The simulation model includes three kinds of assumptions:

- ▶ Assumptions that must be made about the Medicare environment, regardless of GVPS,
- ▶ Assumptions relative to the design features of GVPS,
- ▶ Assumptions concerning the likely impacts on provider behavior of a GVPS program.

1. Assumptions About the Medicare Environment

Default growth rates. Even in the absence of GVPS, we assume that service volume growth will be more restrained for care delivered by the proposed GVPS groups, compared to

other providers. This is because groups that operate under GVPS are more likely to proceed with cost-reducing innovations because of other managed care incentive arrangements.

We therefore assume that without GVPS, the volume and intensity of all Medicare services will increase by 10 percent for patients never seen by the GVPS groups. For patients seen at least once by these groups, we assume that volume and intensity growth will be 7.5 percent for care delivered by the group itself, and 8 percent for care delivered to these same patients by other providers. The latter assumption reflects the idea that patients seen by the groups are being managed differently, and this difference also applies somewhat to the care the patients receive from other providers.

Medicare enrollment and costs. We assume that Medicare has 30 million beneficiaries using services on a fee-for-service basis. For simplicity, we do not project any enrollment growth over the five-year period. Patients seen at GVPS groups are assumed to average \$7,000 in total Medicare reimbursements in the base year. For other beneficiaries, the average per-person reimbursement for all Medicare services is set at \$5,000. These RPUPS values were chosen as representative of the differentials observed between our selected provider sample and their market areas.

The difference in average reimbursements is large. However, this probably accurately reflects differences in case mix and service mix between the GVPS groups and other providers, which ultimately yield higher average costs. These differences in RPUPS levels are a source of opportunity for Medicare and the groups, in that large savings could result from initiatives targeted at this high-cost population.

Cost inflation factor. For the purposes of the simulation, we assume that the fees paid by Medicare for MVPS services are increased by a cost inflation factor each year. In the simulations, the same update for inflation of service costs is also applied to other Medicare services. We assume that inflation increases by 5 percent per year in all five years.

Medicare Volume Performance Standards. We assume that throughout the period considered, Medicare sets a target of 10 percent annual growth in volume and intensity. This assumption ensures that all providers meet the performance standard, since even the nongroup providers only increase their volume and intensity by 10 percent annually. Therefore, in the absence of GVPS, all providers would receive a full update (the cost inflation factor) to the fee schedule for MVPS services (i.e., no penalty). As a result, any changes in update factors observed in the simulations can be clearly attributed to the impact of GVPS.

Expenditure Targets for Non-MVPS Services. The Medicare services currently included in the MVPS methodology represent a select set of Part B services (largely physician and other professional services). All other Part A and Part B services do *not* have target rates of growth with the size of future fee increases subject to penalties for excessive growth. In the simulations, however, we are examining scenarios where GVPS groups are evaluated for

managing the growth of average reimbursements per patient seen for all Part A and Part B services. Therefore, we assume in the simulations that HCFA has implemented volume performance standards for non-MVPS services analogous to the MVPS.

Non-MVPS services then have a volume performance standard rate of growth of 10 percent in the model. Since even the non-GVPS providers are growing at this rate for all services, all providers will operate within this target and be eligible for a full increase in payment rates according to the cost inflation factor. This update factor will be reduced only by the cost of GVPS reward payments.

2. Assumptions about the GVPS Policy Design

Computation of savings. Savings in reimbursements due to the GVPS policy are computed by comparing *actual* payments for patients seen by the groups to *projected* payments in the absence of GVPS. Projected payments are found by applying the specified volume growth target to the volume index for group providers in the base year.

Annual rebasing of targets. An important design consideration is whether the volume performance targets are rebased annually to reflect the GVPS groups' year-by-year performance. This approach causes a "ratchet effect" with undesirable incentive properties which are discussed elsewhere in this report. Simply stated, a group that reduces volume not only loses reimbursements from forgone fees in the current year, but it also faces a tougher target in the following year. We present results both with and without annual rebasing of targets.

Savings sharing rate. Rewards in the simulation model are computed in the following manner:

$$\text{Reward} = \text{Medicare Savings} \times \text{Patient Capture Ratio} \times \text{Sharing Rate}$$

In this formula the groups are not compensated for the full amount of projected savings. This approach is taken for two reasons. First, the savings amount will include reimbursements forgone by other providers, not simply those forgone by the GVPS group. This follows from the fact that each group is evaluated according to how well it managed all care delivered to its patients, not just the care it provides directly. Applying the PCR to the savings amount corrects for this fact.

Secondly, reimbursements forgone are an overstatement of net income forgone, as discussed earlier. The sharing rate therefore defines the percentage of reimbursements lost by the group through efficiency that will be paid by HCFA as a reward. The base case considered is 75 percent, with HCFA retaining the other 25 percent portion. It is important to note, however, that HCFA also retains the entire amount beyond the group's attributed percentage (PCR).

Updates to fees for Medicare Part A and Part B services. In the absence of GVPS, we assume that HCFA updates fees for all services in accordance with the cost inflation factor, less any penalties for failing to meet volume performance standards. The maximum feasible update is therefore 5 percent per year, from our assumption about the cost inflation factor.

In the scenarios, assume the fee update under GVPS is set as follows:

$$\begin{aligned} \text{Update factor} &= \text{cost inflation growth rate} \\ &\quad \text{Less (Adjustment to finance rewards to groups)} \end{aligned}$$

We assume that the broad-based performance penalty is determined by evaluating whether the volume growth target was actually met by non-GVPS providers. The alternative would be to evaluate volume growth achieved by all providers. We do not recommend or model this option, because of its potentially undesirable effects. If the GVPS groups were included in the measure of national volume performance, then the more they restrained volume growth, the better the resulting measure of national performance would look. As a result, updates under GVPS would be higher for everybody than without GVPS, even if the non-GVPS providers failed to meet their collective targets.

This would have two undesirable results. First, the incentive properties of GVPS for other (i.e., non-GVPS) providers would be dampened, as they could “free ride” on the efforts of the groups, and still get ample updates. Second, the cost to HCFA of paying higher updates to non-GVPS providers would reduce or even nullify the government’s net savings from the GVPS initiative, casting doubt over the program’s long term sustainability.

In order to ensure budget-neutrality of the program, the proposed formula also includes an adjustment in order to finance rewards. The adjustment is designed to equate projected Medicare payments in the update year with GVPS (including reward payments) and without GVPS (using the fee update net of any performance penalty). In the simulations, actual volume growth is in fact equal to, or less than target volume growth. As a result, the only reductions to the update factor observed are due to the paying of rewards to GVPS groups.

3. Assumptions About Providers Under a GVPS Program

Patient Capture Ratio. For simulating the effect of GVPS, a key characteristic of a GVPS group is its capture ratio. For a given group, the PCR is its share of the annual utilization dollars for the patients it sees in the relevant year. A group that provides a little primary care (and nothing else) to many patients would likely have a low PCR when compared to a group that provides more primary care and/or costly tertiary care to its patients.

Based on data that we have reviewed, we use a baseline PCR of 40 percent in the simulations, for *all* Medicare services. For some scenarios we consider a gradual increase in capture ratio over time, amounting to two percentage points a year. However, in the base case

scenario we assume no changes in the PCR in order to avoid over-complicating the interpretation of other effects. In order to enable the calculations to work out, the PCR does trend downward slightly over the five years.

Reduction in service utilization and rates of growth. In the base case scenario, we assume that the groups will respond to GVPS and succeed in reducing the annual growth of service volume and intensity for their Medicare patients. This will include reductions in these patients' use of services from other providers as well. For care directly provided by the groups, utilization growth will be 1 percent lower than it would have been without GVPS (i.e., 6.5% annually). In addition, the groups will be managing the care their patients receive from other providers. We assume the success of this management depends on a group's PCR. Therefore, the GVPS groups with 40 percent capture will achieve only 40 percent of the reduction in utilization growth for externally-provided care that they achieve for the care they provide directly. In the base case, externally-provided care therefore grows at 0.4 percentage points below its non-GVPS rate of 8 percent ($0.4 \times 1\% = 0.4\%$), so this volume grows at 7.6 percent annually.

One of the most compelling features of the GVPS approach is the fact that GVPS groups have an incentive to reduce utilization in much the same manner that capitated HMO providers do, even though GVPS groups are still paid on a fee-for-service basis. Therefore, we anticipate that any group entering the GVPS program will move immediately to reduce, where clinically appropriate, the quantity of services utilized by the group's patients below existing levels. As a result, groups responding to GVPS do not only restrain the rate of growth in service utilization by their patients, but also achieve reductions in the absolute levels of service utilization. The base-year service utilization has some excess built-in due to the existing fee-for-service incentives. Groups deciding to participate in GVPS take steps to cut out this excess, since they will be rewarded for savings. In the simulations, therefore, we assume that GVPS groups cut the RPUPS for their patients 7 percent (\$7,000 to \$6,510) upon entering the program.

For patients never seen by GVPS groups, volume and intensity for all Medicare services are assumed to continue growing at the default rate of 10 percent per year, with or without GVPS. This rate of growth is applied to the base year RPUPS level of \$5,000.

Increase in the proportion of Medicare beneficiaries seen by GVPS groups. The base case scenario assumes no growth in overall Medicare enrollment, with the percentage of beneficiaries seen by GVPS groups fixed at 10 percent. An alternative scenario allows for an expanded GVPS program with groups seeing an additional 15 percent of Medicare beneficiaries, so that 25 percent of all beneficiaries are receiving care from GVPS providers for five years.

For this alternative GVPS enrollment scenario, we assume that the additional patients have the same initial RPUPS as the groups' patient populations in the base case scenario. This implies that the GVPS groups are attracting higher-cost beneficiaries, and the average reimbursement outside the groups must be correspondingly lower. Therefore, in this alternative

scenario we assume that average reimbursements for patients never seen by GVPS groups (75% of the 30 million beneficiaries that use services) decline from an RPUPS value of \$5,000 to \$4,600. The issue of case mix is further discussed below.

Change in patient case mix at groups. There is potential for some of the groups' initiatives to alter the mix of patients they see, leading to changes in their RPUPS levels. For example, a group might expand primary care offerings, thereby reducing an RPUPS which was previously high because of a focus on specialty care. To the extent that any risk adjustment methods failed to correct for such changes, there would then be a form of the biased selection problem familiar from HCFA's experience with HMOs. An important difference is that the groups would not be capitated, and therefore would face weaker incentives to favorably select. Like other fee-for-service providers, they face immediate loss of fee-for-service reimbursements if they avoid potentially costly patients, and this loss is unlikely to be outweighed by the promise of partial compensation in the future through the GVPS reward payments.¹⁷

4. Summary: The Base Case Scenario

As noted above, the simulation approach required a base GVPS scenario, which could then be varied on different dimensions. The base case GVPS scenario has been defined as follows:

Medicare Environment

- 1) 30 million beneficiaries use services each year.
- 2) GVPS groups see 10 percent of Medicare patients.
- 3) \$156 billion in Medicare spending for all services.
- 4) Cost inflation factor grows 5 percent annually for the 5 years.
- 5) Volume performance standard for all services allows for 10 percent growth in service volume annually.

GVPS Policy Parameters

- 1) Medicare Savings under GVPS are the difference between actual payments for services to patients seen by GVPS groups and projected payments in the absence of GVPS.

¹⁷The Sharing Rate specified in the Reward formula would influence the strength of the incentives. Simply *adding* relatively healthy patients could be a problem worth considering when monitoring results under GVPS. Appendix C discusses excluding from RPUPS calculations patients with low reimbursements to the group, effectively ignoring very low utilizers in the determination of Medicare savings and rewards.

- 2) Sharing Rate: GVPS groups get rewards equal to 75 percent of their share of the savings (i.e., Medicare Savings \times Patient Capture Ratio \times 0.75).
- 3) Target rebasing: none over the five-year period
- 4) The fee update factor is equal to the cost inflation growth rate, less the cost of GVPS reward payments.

Provider Characteristics

- 1) GVPS groups provide directly 40 percent (in dollars) of all Medicare-covered services that their patients receive (PCR=0.40).
- 2) Volume of services provided to patients never seen by GVPS groups grows 10 percent annually, with and without GVPS.
- 3) Prior to GVPS, the groups provide 7.5 percent more services per year to their patients while other providers provide 8 percent more services per year to these same patients.
- 4) With GVPS, participating groups provide 6.5 percent more services per year to their patients while other providers provide 7.6 percent more services per year to these same patients.
- 5) For patients seen by GVPS groups, base year RPUPS = \$7,000.
- 6) For patients never seen by GVPS groups, base year RPUPS = \$5,000.
- 7) Under GVPS, groups realize a 7 percent reduction in RPUPS.

C. Findings

1. Results

Table 3 presents results of the simulation for the base case scenario, and contrasts them with projected results in the absence of GVPS. Table 3 shows that under GVPS, the groups lose \$1.988 billion in reimbursements in year 5 (12.92% of what they would have received without GVPS). This loss is more than offset by a reward of \$2.509 billion for their success in meeting targets. With the reward, the groups are 3.38 percent better off with GVPS than without. The non-GVPS providers also face lower reimbursements under GVPS, but the losses are spread over a much larger base, and therefore only account for 2.73 percent of their year 5 reimbursements without GVPS. Finally, Medicare saves 2.44 percent of total reimbursements for year 5 with GVPS (\$7,709 billion), since higher payments to groups are more than offset by lower payments to non-GVPS providers.

Table 3

Distribution of payments with/without GVPS
Scenario: GVPS Base Case*

| Payments (\$Medicare) in Year 5 | Scenario | | Difference (% change) with GVPS |
|--------------------------------------|----------|---------|---------------------------------|
| | GVPS | No GVPS | |
| Reimbursements to GVPS groups | 13,403 | 15,391 | -1,988 (-12.92) |
| Reward payments to GVPS groups | 2,509 | 0 | +2,509 |
| Total group income | 15,912 | 15,391 | +521 (+3.38) |
| Reimbursements to non-GVPS providers | 292,887 | 301,116 | -8,230 (-2.73) |
| Total payments by Medicare | 308,798 | 316,507 | -7,709 (-2.44) |

Table 4

Decomposition of GVPS
Scenario: GVPS Base Case*

| Payments (\$Medicare) in Year 5 | Change in Payments (Compared to No GVPS) | | |
|---------------------------------|--|-----------------------|--------|
| | To GVPS Groups | To Non-GVPS Providers | Total |
| Reductions in Volume | -1,700 | -2,595 | -4,295 |
| Reductions in Updates | -288 | -5,635 | -5,923 |
| Reward Payments | +2,508 | 0 | +2,509 |
| Total | +521 | -8,230 | -7,709 |

* GVPS groups see 10% of beneficiaries that use services in every year

Table 4 provides insight as to the source of the \$7.709 billion savings for Medicare in the fifth year of GVPS, by decomposing this amount into price and volume changes. It may be seen that for the GVPS groups the larger share of the savings comes from reduced utilization, which in the model results from the GVPS groups' activities. Since the groups are managing all care for their patients, and non-GVPS providers account for 60 percent of this care, the non-GVPS providers also lose reimbursements as volume is reduced. In addition, both group and non-GVPS providers receive lower updates in order to finance the reward payments to the groups. It is worth noting that while all non-GVPS providers will experience the effect of GVPS through lower updates, the volume reduction effects will be experienced only by those who see patients managed by the GVPS groups. For the most part, these would be providers located in the groups' market areas.

Table 5 addresses the effects of GVPS over time, by comparing volume and payments per beneficiary in year 5, with and without GVPS. Without GVPS, volume growth for Medicare over the five years is 60.5 percent, and payments per beneficiary increase by 102.9 percent. Note that even without GVPS, the groups' efficiency ensures that they experience slower volume growth than non-GVPS providers. With GVPS, the non-GVPS providers supply the same rate of volume growth as without GVPS (62.6%), and GVPS reduces their payment growth by reducing their updates. However, volume increases by only 30.5 percent

Table 5

Volume and Payments Change Over Time with/without GVPS
Scenario: GVPS Base Case*

| Volume per beneficiary (index) | Payments (\$Medicare) | | | Percent Change | |
|-----------------------------------|-----------------------|----------|----------|----------------|------------|
| | Base Year | Year 5 | | GVPS | No GVPS |
| | | GVPS | No GVPS | | |
| Beneficiaries seen by GVPS groups | 134.6 | 175.7 | 197.8 | 30.5% | 47.0% |
| Other beneficiaries | 96.2 | 156.3 | 156.3 | 62.6% | 62.6% |
| All beneficiaries | 100.0 | 158.3 | 160.5 | 58.3% | 60.5% |
| Payments per beneficiary | | | | | |
| Beneficiaries seen by GVPS groups | \$7,000 | \$11,331 | \$13,006 | 61.9% | 85.8% |
| Other beneficiaries | \$5,000 | \$10,085 | \$10,277 | 101.7% | 105.5% |
| All beneficiaries | \$5,200 | \$10,210 | \$10,550 | 96.3% | 102.9% |

* GVPS groups see 10% of beneficiaries in every year

for the patients seen at groups, and payments for them increase by only 61.9 percent. As a result, payments for all beneficiaries increase by 96.3 percent over the five years with GVPS, which is lower than the growth of 102.9 percent that would have occurred without GVPS.

2. Sensitivity to Policy Parameters

Table 6 examines the sensitivity of our results to various changes in the policy parameters. It may be seen that increasing the sharing rule from 75 percent to 95 percent reduces slightly the total payments by Medicare in year 5. However, it increases the groups' gain from implementation of GVPS, from 3.38 percent to 7.18 percent above their reimbursement total without GVPS.

Of greater importance is the rebasing rule. The use of annual rebasing would make GVPS a money-loser for the groups, reducing their revenues 9.64 percent below the GVPS year 5 amount of \$15.912 billion in the base case. This reflects the ratchet effect of continually adjusting targets based on actual performance. However, the groups' loss in this case is not a gain for Medicare. Instead, the benefits accrue to non-GVPS providers, who receive higher updates (and therefore smaller revenue losses) than they would otherwise. This is because rebasing reduces measured savings, and therefore reduces the rewards to GVPS groups which would otherwise be financed through lower updates.

3. Sensitivity to Other Assumptions

Table 6 also addresses the sensitivity of results to varying the assumptions about program impacts. If the groups reduced volume growth to 4.5 percent instead of 6.5 percent, they would increase their income in year 5 by 1.67 percent of the value without GVPS. The income gain is smaller than the 3.38 percent achieved in the base case scenario. This suggests that the additional rewards for curbing utilization more tightly are ultimately outweighed by the loss of fee-for-service reimbursements. With the 4.5 percent growth variation, Medicare would save 2.93 percent of year 5 payments without GVPS, compared to 2.44 percent savings in the base case with 6.5 percent utilization growth.

Alternatively, if the GVPS groups increased their PCR by 2 percent per year in addition to achieving the baseline utilization savings for Medicare, they would greatly increase their fee-for-service reimbursements. In this scenario variation, the groups' revenues in year 5 would be 29.3 percent higher than without GVPS. For Medicare, this scenario results in a 0.09 percentage point larger payment reduction than the GVPS base case because care is being transferred from other providers to GVPS groups, who are presumed to control utilization growth.

Lastly, Table 7 presents the results of the enrollment scenario where GVPS groups see 25 percent of the beneficiaries that use services, as compared to 10 percent of beneficiaries in the GVPS base case scenario. This alternative is labeled the GVPS 25

Table 6

Effect of Varying Program Impacts on Payments Under GVPS
 * GVPS Groups see 10% of Beneficiaries that Use Services

| Scenario | Varying Assumptions | | | | Payments (\$Medicare) in Year 5 | | | Percent Change from No GVPS | | |
|-------------------------|---------------------------------|----------------------------|--------------------------|----------------------------------|---------------------------------|-----------|---------|-----------------------------|--------|-------|
| | Groups' Utilization Growth Rate | Annual Increase in Capture | Groups' Share of Savings | Annually Rebase Groups' Targets? | To Groups | To Others | Total | Groups | Others | Total |
| No GVPS | -- | -- | -- | -- | 15,391 | 301,116 | 316,507 | -- | -- | -- |
| GVPS Base Case | 6.5% | 0 | 75% | No | 15,912 | 292,887 | 308,798 | +3.38 | -2.73 | -2.44 |
| Variants | | | | | | | | | | |
| Vary Savings Share | 6.5% | 0 | 95% | No | 16,497 | 291,401 | 307,898 | +7.18 | -3.23 | -2.72 |
| Vary Rebasing Rule | 6.5% | 0 | 75% | Yes | 13,907 | 296,665 | 310,572 | -9.64 | -1.48 | -1.88 |
| Vary Utilization Growth | 4.5% | 0 | 75% | No | 15,648 | 291,570 | 307,218 | +1.67 | -3.17 | -2.93 |
| Vary Capture Growth | 6.5% | 2% | 75% | No | 19,900 | 288,593 | 308,494 | +29.30 | -4.16 | -2.53 |

Table 7

Effect of Varying Program Impacts on Payments Under GVPS
 GVPS Groups see 25% of Beneficiaries that Use Services

| | Varying Assumptions | | | | Payments (\$Medicare) in Year 5 | | | Percent Change from No GVPS | | |
|-------------------------|---------------------------------|----------------------------|--------------------------|----------------------------------|---------------------------------|-----------|---------|-----------------------------|--------|-------|
| Scenario | Groups' Utilization Growth Rate | Annual Increase in Capture | Groups' Share of Savings | Annually Rebase Groups' Targets? | To Groups | To Others | Total | Groups | Others | Total |
| No GVPS | -- | -- | -- | -- | 38,478 | 271,812 | 310,289 | -- | -- | -- |
| GVPS 25% Scenario | 6.5% | 0 | 75% | No | 38,619 | 252,647 | 291,266 | +0.37 | -7.05 | -6.13 |
| Variants | | | | | | | | | | |
| Vary Savings Share | 6.5% | 0 | 95% | No | 39,713 | 249,322 | 289,036 | +3.21 | -8.27 | -6.85 |
| Vary Rebasing Rule | 6.5% | 0 | 75% | Yes | 34,443 | 261,139 | 295,581 | -10.49 | -3.93 | -4.74 |
| Vary Utilization Growth | 4.5% | 0 | 75% | No | 37,848 | 249,572 | 287,420 | -1.64 | -8.18 | -7.37 |
| Vary Capture Growth | 6.5% | 2% | 75% | No | 48,082 | 242,411 | 290,494 | +24.96 | -10.82 | -6.38 |

percent scenario in the table. Expanding the proportion of beneficiaries seen by the more efficient GVPS providers yields even greater savings to Medicare. Medicare saves more than \$19 billion in year 5 payments (6.13%), compared to spending without GVPS. In contrast to the GVPS base case, groups in the 25 percent scenario are only 0.37 percent better off in terms of fifth year revenues than in the absence of GVPS. Apparently, expansion in the size of reward payments has the effect of reducing fee updates to the extent that groups gain greater net revenues with 10 percent enrollment than 25 percent.

Changing the policy parameters under the GVPS 25 percent scenario has similar effects to those observed for the GVPS base case. Increasing the groups' share of savings from 75 percent to 95 percent expands their net revenues gain from 0.37 percent to 3.21 percent (\$1.235 billion), and Medicare achieves a 0.72 percentage point increase in savings. Once again, the variation with annual rebasing of targets results in the groups receiving lower payments than without GVPS (a loss of 10.49%). Medicare's fifth year savings decline with annual rebasing from more than \$19 billion to \$14.7 billion.

Table 7 also displays the result of assuming GVPS groups under the 25 percent scenario respond by limiting utilization growth to 4.5 percent rather than 6.5 percent. Under these circumstances, the groups end up with 1.64 percent lower payments than in the absence of GVPS, while Medicare gains an additional 1.24 percent in savings. The last variation presented in Table 7 models the result of allowing groups to increase their PCR 2 percent per year over the five years. GVPS groups in this variation realize a 24.96 percent gain (\$9.6 billion) in year 5 net revenues. Medicare payments in year 5 are approximately \$19.8 billion below their projected level with no GVPS program.

D. Discussion of Simulation Results

The results in this section suggest that there are combinations of GVPS design and group activities that would generate gains for both Medicare and the groups. The most favorable scenarios are those in which the groups expand the proportion of Medicare patients they see, since this moves more patients into a slower-growing environment. As a result, both the groups and Medicare would benefit. Medicare is also affected by greater or lesser effectiveness of the groups' utilization controls, with Medicare gaining more savings as the groups control growth better.

Policy parameters differ in their importance to the success of GVPS. Use of annual rebasing would reduce the groups' net income below the level in the absence of GVPS. Alterations in the sharing rule could also affect how well groups do under GVPS. Group participation could be deterred by overly restrictive policies in these two areas.

The results in this section suggest that GVPS could potentially provide Medicare with billions of dollars in savings. The long-term impact of shifting beneficiaries from unmanaged, fast-growth settings to slow-growth, efficient providers could be of great significance to HCFA.

This policy could offer long-term gains beyond an immediate reduction in reimbursements. Quality, cost-effective providers will have an incentive under GVPS to provide services and manage the care of the most expensive Medicare beneficiaries.

XII. Conclusions and Recommendations

Medicare has experienced large increases in spending during recent years, and most projections suggest these increases could continue. Policymakers have debated the merits of regulation, such as rate setting, versus market-oriented solutions, such as managed care. We believe that the regulatory framework established for MVPS is useful for achieving budgetary goals. However, we also believe it would be useful to supplement the current system with economic incentives that encourage the management of services. Many physicians and administrators who contributed to this study even commented that incentives under the traditional fee-for-service payment system—with or without MVPS—were out of step with their current efforts to manage care and improve efficiency.

Managing services more effectively may elicit large savings from lower utilization rates, but bringing beneficiaries into managed care environments can be difficult. Medicare risk contracts with HMOs offer one opportunity. Capitation can create incentives for efficiency that encourage managed care. However, participation by an HMO is largely contingent on positive financial results. In turn, enrollment by Medicare beneficiaries into an HMO is contingent on better benefits and/or lower premiums than competing Medicare supplemental policies. The current system pays HMOs 95 percent of estimated costs and therefore could save Medicare up to 5 percent for enrollees. Unfortunately, Medicare saves less than 5 percent, or even loses money, in cases where the average cost estimates are too high because of favorable selection.

We hypothesize that Medicare could achieve greater savings from GVPS than from the capitation system:

- ▶ First, the chances of Medicare *losing* money may be less under GVPS because the performance standards are based on the experience of the group. In contrast, capitation embodies “performance standards” that may have little correspondence to actual enrollees. Although there is always error associated with estimating expected costs, the experience of a group’s own patients may be a more valid basis than the experience of other providers’ patients.
- ▶ Second, the financial benefits of managing care can be shared more evenly under GVPS. The formulas for sharing the savings can give ample incentives and rewards to groups, yet still allow Medicare to benefit substantially. Under capitation, any savings to Medicare are capped at 5 percent of mean reimbursement levels. Under GVPS, Medicare may keep the majority of savings for patients seen by most groups.

- ▶ Third, under GVPS groups have incentives to serve and manage expensive Medicare patients. Providers paid under fee-for-service are encouraged to seek and retain patients most in need of services. Capitated health plans have incentives to seek and retain relatively healthy *members*, not patients.

We also see advantages of GVPS over state level MVPS and penalizing hospital medical staffs:

- ▶ Our analysis suggests that increases in Medicare costs are more pronounced for Part A and other non-MVPS services. It would seem worthwhile to pursue *comprehensive* policies that embrace all services. Under GVPS, HCFA can follow reforms in the industry and encourage management of all services. Policies addressing MVPS services within states, or physician services within the hospital, are relatively narrow and not aimed at the major problem areas or most promising solutions.
- ▶ Also worthwhile would be *coherent* policies that link appropriate incentives to the responsible decision-makers. We believe physician groups are the optimal focal points for comprehensive and coherent Medicare payment policies. Based on what we found, there are physician groups willing to accept the challenge.
- ▶ In different ways, state level MVPS and hospital medical staff policy options are *subsets* of potentially more comprehensive GVPS policies. Setting regional or local performance standards is one necessary step in the process of establishing a GVPS option, which completes the process by giving incentives to providers to respond. Hospital medical staffs are potential candidates for GVPS, which could give them incentives to manage ambulatory and institutional services.

HCFA has several parameters to consider for GVPS, which involve various tradeoffs. A significant decision is whether to stay with the scope of physician and supplier services only. Other decisions have to do with the level of complexity to build into the algorithms for setting standards and measuring performance. Also, decisions are needed about the appropriate balance between incentives to participate, and incentives for efficiency among those who participate.

- ▶ HCFA has the administrative capacity and relevant data to implement GVPS for physician and supplier services, or for all Medicare services. Most of the administrative burden lies with the physician services because of their large numbers. Ironically, adding the other categories of services increases the administrative burden relatively little, but greatly increases the scope of the incentives and potential savings. We recommend basing GVPS on all services. For non-MVPS services, projections used in setting capitation rates for HMOs could also be used to set performance standards for groups.
- ▶ There are a number of potential refinements and variations discussed in this report. (See Appendix C). Again, they would involve data and capacity that HCFA already has, but

would add to the number of steps. The value of methods to dampen stochastic effects must be considered in light of selected criteria for participation. Allowing medium sized groups to participate, for example, may add to the value of refinements. We recommend that health status adjusters be employed, but further consideration is needed about which categories to use.

- ▶ Groups should be given incentives for improving efficiency. These incentives could be in the form of rewards and/or penalties. Although penalties may strengthen incentives for efficiency, we believe that interest in participating would be greatly reduced by the prospect of losing money. Assuming that HCFA is willing to set cumulative performance standards, we recommend that concentrated penalties not be included. Failure to capitalize on an opportunity to manage care and earn rewards is itself a sufficient penalty, as is rising above a cumulative target and diminishing chances for future rewards. Giving positive incentives similar to capitation, and allowing HCFA to share in the savings, could reap significant benefits for Medicare and participating groups.

Based on these considerations, we recommend that HCFA consider models with parameters such as the following:

- ▶ Establish eligibility criteria, such as groups with primary care physicians and specialists serving about 8,000 or more beneficiaries per year, and a Patient Capture Ratio of at least 20 percent for physician services.
- ▶ For a policy beginning within the next year, say early in 1996, choose 1994 as the base year.
- ▶ Measure utilization as RPUPS based on all Medicare services.
- ▶ Establish performance standards using the counties where at least 5 percent of the group's patients reside. These are cumulative, meaning annual increases are applied to the previous target, not the most recent actual RPUPS. Adjust the performance standard each year for changes in case mix from the base year.
- ▶ Pay successful groups a lump sum reward consisting of a refund for revenues lost from national fee penalties, plus 75 percent of the product of estimated Medicare Savings times the Patient Capture Ratio.
- ▶ Penalize unsuccessful groups only through any applicable national fee penalties.

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I. Appendix A: Consultations with Multispecialty Groups

A. IHP Outreach Efforts with Group Practices

Over the course of the GVPS research effort, Institute for Health Policy research staff have engaged in a series of contacts and exchanges of information with a number of group practices across the U.S. These contacts have included activities such as the following:

- IHP presentations at groups' colloquia,
- Limited surveying of groups by IHP,
- A GVPS conference organized by IHP with group representatives attending,
- Conference calls with group leadership,
- Visits to group sites by IHP.

The consultations with the groups have informed the GVPS research effort, providing insights on the role of Medicare in group practices, the organizational capabilities and dynamics of group practices, and potential obstacles to the implementation of GVPS. Because of explicit and implicit confidentiality considerations, specific identification in this appendix of groups and their representatives is limited.

Creation of the National Advisory Committee on GVPS

A half-dozen group practices (Lahey Clinic, Cleveland Clinic, Ochsner Clinic, Henry Ford Health System, Mayo Clinic, and Lovelace Clinic) meet on a regular basis to discuss common issues and challenges. Discussions between Lahey Clinic representatives and IHP staff about GVPS led to Lahey extending an invitation to IHP to make a GVPS presentation at a meeting of these six clinics. In addition, the initial GVPS report (Wallack et al., 1991) generated interest among members of the American Group Practice Association (AGPA). As a result, researchers at IHP made a presentation on GVPS at an AGPA national conference. Lastly, interest in GVPS among some additional group practices grew out of their existing relationships with IHP. Based on all these outreach activities, IHP identified a small set of providers that were interested in GVPS and willing to engage in consultations with IHP. These providers were then organized as the National Advisory Committee on Multispecialty Group Practices with the following members:

- Cleveland Clinic Foundation (Cleveland, OH)
- Fallon Clinic (Worcester, MA)
- Geisinger Clinic (Danville, PA)
- Henry Ford Health System (Detroit, MI)
- Lahey Clinic Foundation (Burlington, MA)
- Lovelace Clinic (Albuquerque, NM)
- Mayo Foundation (Rochester, MN; Scottsdale, AZ; Jacksonville, FL)
- Ochsner Clinic (New Orleans, LA)

Scott & White Clinic (Temple, TX)
Upper Hudson Primary Care Consortium (Warrensburg, NY)

Dr. William Conway, Vice-President for Medical Affairs at Henry Ford Health System, serves as committee chairman. The committee has subsequently been renamed the National Advisory Committee on GVPS.

Small-Scale Survey of the Advisory Committee

Each member of the advisory committee received in 1993 a small set of questions prepared by IHP. The questions on these committee response sheets were designed to produce enhanced understanding of each group practice organization's size and structure, physician specialty composition, and the Medicare component of total caseload. IHP received responses for 8 of the committee's 12 sites.

The majority of the responding sites operate as non-profit corporations. Almost all physicians in each group practice work full-time at the practice. The size of the physician staff in 1993 ranged from 150 to 995 FTEs, with a mean of 421. Over the 1989-91 period, these physician staffs grew at each of the responding sites (1-10% growth). All of the groups that completed the committee response sheet deliver a broad range of primary and tertiary services, and the physician staffs represent accordingly diverse arrays of specialties.

In 1993, each responding group was either involved in contractual relationships with managed care organizations or negotiating a possible relationship. Four groups indicated that they were operating their own HMO. All of the groups had longstanding quality assurance programs with most now organized on the continuous quality improvement model.

The delivery of medical services to Medicare beneficiaries represents an important component of each group's operations. For the year 1991, the Medicare proportion of total patient caseload ranged from 11 to 49 percent. Medicare reimbursements represented 18 to 49 percent of total group revenues over the same period.

1993 Conference on GVPS

IHP organized a conference on GVPS that was held in Boston on November 5, 1993. Representatives for 10 of the 12 sites attended, and these representatives held leadership positions in their organizations (chief financial officer, medical director, chief administrative officer, etc.). The HCFA project officer for GVPS also attended, along with another representative from HCFA's Office of Research and Demonstrations. This conference had two main purposes: (1) a presentation by IHP of a detailed report on the progress to date in the development of GVPS models, methods, and research; and (2) a discussion with group representatives in order to identify potential pitfalls and opportunities in the development and operationalization of GVPS.

The group representatives were excited by the potential of GVPS and the available research findings, such as the demonstrated ability to trace a group's aggregate Medicare claims via the I.R.S. employer identification number (EIN). They also expressed a keen interest in continuing to participate in consultations on the development of group-specific volume performance standards. A series of conference calls with leadership at each site did ensue, at least partially as a result of this conference. In addition, researchers at IHP obtained a list of issues whose resolution would serve to guide the ongoing GVPS effort.

Visits to Advisory Committee Member Sites

During the course of 1994, IHP researchers made visits to 9 of the 12 group practices serving on the advisory committee. Our objectives in visiting the sites were two-fold:

1. To detail progress on the project, present findings from data, and to educate senior staff regarding the proposed GVPS models.
2. To gather information about the sites which would help us decide how feasible applying the various GVPS models would be at the sites.

Some information was shared between Brandeis and the sites. The common goal was to develop a better knowledge base from which to operate. We realized as we conducted our site visits that a unidirectional gathering of information about these organizations on our part was necessary but not sufficient to properly support the building and implementation of GVPS models at multispecialty groups. Thus, an important component of our site visits became the educational process we undertook in explaining GVPS to the groups' senior clinical and administrative staff. Prior to every site visit, we distributed to each group a draft document that explained the background of GVPS, and discussed several models. This document served as the starting point for presentations and discussions at our site visits. In addition, we used this opportunity to present site-specific findings from our analysis of the Medicare database. As site visits were carried on during a time-frame of almost a year, our analyses became more detailed as the year progressed. Therefore, sites which we visited later in the year were apt to receive more findings.

All groups received a core set of reports earlier in the project, before site visits were initiated. This first round of reports were site-specific, and analyzed a site's Medicare beneficiary population along two core dimensions: RPUPS and PCR (see Section X). We followed this up with conference calls with senior representatives at the groups to discuss the implications and value of these data. A general consensus emerged among the group practices that they would like to receive blinded copies of the specific data prepared for all other sites, and this anonymous set of data was sent in a second round of mailings. We received positive feedback from the groups regarding these data since they could then compare their own performance with other sites. For sites visited later in the year, we were able to provide them with data regarding their Medicare patients' utilization of services (both within their organization and external to it) by place of service and by specialty.

Groups recognized the value of knowing their PCR, since this measure illustrates the extent to which their Medicare patients are utilizing the services of providers outside the organization. Any group pursuing a proactive approach to managing more of their patients' care must move beyond simply making services available in-house. Indeed, one of the sites had realized the importance of patient satisfaction in increasing patient loyalty, and as a matter of routine performed customer surveys to determine how satisfied patients were with the group's physicians. The group's goal was to identify the factors responsible for producing an acceptable level of patient satisfaction, and then strategically address these systemic factors in order to promote patient loyalty (thereby increasing PCR).

At another site, group leaders admitted that the need to manage PCR had not been perceived; historically, there had been enough FFS volume. Given the changing environment, they acknowledged that future strategies would include measures to shift more of their patients' utilization inside the organization. In operational terms, it would mean that more of the patient's needs would be identified in-house, and utilization of appropriate services within the organization itself would be encouraged, such as through enhanced access. One example mentioned was the potential creation of a telephone reminder system for patients with chronic diseases that would promote compliance with their treatment regimens (including visits and recommended prevention protocols). Such a service innovation would have the added benefit of improving quality of care.

A quality improvement strategy adopted by a second group involved employing a team approach for the care of diabetics with each team led by an endocrinologist. Evaluation of this innovation determined that it had drastically reduced the need for hospitalization due to hypo- and hyper-glycemic reactions. In the context of GVPS, the group's leaders posited that the innovation in diabetic care had accomplished two further strategic goals: increased PCR for the group's diabetic patients covered by Medicare, and efficiently contained growth in RPUPS levels for these patients.

Discussions with groups that displayed a high RPUPS level for their Medicare patients centered around ways that such organizations could implement strategies to more efficiently manage utilization within the organization. Many of the advisory committee group practices are already engaged in executing operating strategies to streamline the delivery of care, avoid duplication of services, implement clinical pathways and treatment protocols, and reduce variation by standardizing care. Again, very often quality improvement efforts provided the impetus for these strategies.

At one of the groups, disease management strategies were developed and implemented to manage the entire care of patients with certain diseases. For example, more intensive management of patients with asthma extended the use of outpatient care services and actually reduced the incidence of emergency admissions due to asthma. Similarly, this site instituted a triage system for female patients with uncomplicated urinary tract infections that involved a detailed questionnaire administered by a nurse practitioner. This system reduced the length of

courses of treatment, and also lowered the use of specialist consultations, cultures, and expensive antibiotics. At another group, implementation of a decision tree for breast cancer treatment (mammography finding triggering a therapeutic cascade) resulted in more timely management in accordance with accepted and recommended clinical protocols. According to the surgeon who developed the tree in conjunction with a team of clinicians and administrators, the group now provides these patients with better outcomes and more efficient care.

At the time of our site visits we uniformly found site representatives to be relatively well-informed about project development. Questions usually arose about the implications for individual sites and the utility of participating in a GVPS program. At this point, we discussed with group leaders those elements of a site's environment, both internal and external, that might determine the GVPS model a group would prefer to participate under. We invariably found that through this process of mutual information exchange, site representatives grew to appreciate the opportunities and advantages of operating under some model of GVPS.

B. Organizational Characteristics of Advisory Committee Members

We have outlined in this section some observations regarding the characteristics and capabilities of the group practices we have consulted and that are relevant to GVPS.

Organizations and Environments

Most of the groups are large and well-established, and characteristically display large patient volumes, organized clinical leadership, and explicit clinical standards. These factors provide the potential to effectively manage utilization and costs, and create an atmosphere in which GVPS may be successfully implemented. Members of our MVPS Advisory Committee are dispersed geographically across the nation, and also vary by setting (rural, urban, or semi-urban). Most are located in major metropolitan areas. In addition, most of the member groups have a lengthy history spanning a half century or more, and are known for the niche they have carved out for themselves in health care services. Several of them have new facilities with state-of-the-art architecture and engineering, while some of them are in the process of upgrading or adding to existing structures. The majority of the groups are non-profit organizations. All of them have governing boards of trustees, and an executive branch predominantly made up of physician leaders. Several of the groups now have TEFR risk contracts, or are actively considering such arrangements. Similarly, every group is either involved in ongoing contractual relationships with managed care organizations or negotiating a possible relationship.

The external market environment varies substantially among advisory committee groups. Some are positioned in areas where there are several organizations of comparable size and capability, and potential patients have a wide choice of providers. Some are geographically located such that they are the only organization with their capacity, but they too acknowledge that geographic isolation has become less of a barrier to patient drainage from their market area than before. All the groups are faced with an environment that is changing

rapidly and have had to accommodate trends towards managed care, mergers and strategic alliances. Some of them are in areas where purchasing units such as business coalitions are beginning to have an impact on health care service delivery systems in terms of accountability in outcomes and efficiency.

Power and Control

Essentially, the groups are physician led and dominated. Physicians function not only as clinicians, but also as administrators, supervisors, and strategic planners. The role of lay managers varies among advisory committee members. At some groups, we have observed very solid partnerships and tandem approaches between clinicians and non-clinician managers. Other sites have placed non-clinicians in strongly supportive managerial roles. Where strong alliances between physicians and administrators have been observed, we have typically seen a democratic allocation of power among the organization's physician leaders. Where the reverse is true, we have typically observed a relatively autocratic situation. None of the groups we consulted has assigned any control over clinical matters to non-physician managers, other than strategic planning for service mix.

The advisory committee groups employ three control methods on their physicians, balanced in varying proportions. Bureaucratic control is exerted through the development and implementation of protocols and guidelines, peer review, monitoring, training/education, and utilization review. Market control is exerted through positive approaches such as rewards and incentives; we have not observed any groups, at this point, utilizing negative market approaches such as risk-sharing or penalties. Finally, we found "clan" control can be a very powerful method of control. At some groups, there is a very strong culture of membership in an elite group of physicians, and its implications of behaving up to a certain professional and personal standard, adhering to a certain philosophy of care, and acting responsively to the demands by physician leadership. At others, we found less evidence of a "team spirit."

Service Concept

Traditionally, most of the groups making up the GVPS advisory committee have been known for their specialty care. Several of them have national and international reputations as referral centers for tertiary and quaternary care. Until recently, building a primary care base has not been a priority for such groups. Even now, efforts to shore up the primary care aspects of these organizations are motivated in large part by the need to "feed" their specialties. Representatives at most of the groups expressed the belief that the changing health care environment may no longer be able to support the kind of "top-heavy" organizations they have successfully marketed themselves as in the past, in terms of specialty care.

Similarly, most of the groups we consulted have had a service concept that advocates practice management. Thus, most of them have fairly sophisticated systems in place for managing the resources necessary to run their practices and controlling the costs of delivering specific services. The need to manage the complete patient and all required services—both to

compete in the marketplace as well as to be successful under Group Volume Performance Standards—is a relatively novel concept for these organizations.

We have received mixed feedback from the groups regarding their attitudes towards the gatekeeper concept. Several groups maintain that gatekeeping, via a primary care physician that restricts access to specialty care, does not automatically produce more efficient care. They point out that speedier access to specialists may indeed promote more efficient care for more complex or unusual cases. Physicians at some groups argue that for specific categories of patients, specialist care is far more effective and efficient. The examples most commonly cited are chronic conditions such as diabetes, ulcerative colitis, end-stage renal disease, and congestive heart failure. Furthermore, many of the physicians interviewed stressed that the ready availability of specialist referral and consultation in their groups actually leads to more efficient and effective patient management since delays and missteps in diagnosis and treatment are minimized.

Given that GVPS would apply only to the Medicare population served by the group practices, there is concern that patients' payer class could inappropriately influence their access to care. We believe that this is not likely to occur for several reasons. First of all, group physicians affirm that payer class usually does not become a factor in the clinical management of patients. Indeed, we interviewed a number of physicians who indicated that they could not determine a patient's insurance coverage from the medical record; only clinical information is presented. The advisory committee groups have a reputation for providing quality care that they would seek to preserve and promote. They have a strong incentive to avoid allegations of improperly restricting care. Finally, although GVPS applies only to the Medicare population, other patient populations served by the groups have increasingly come under some form of managed care umbrella.

Operating Strategy

The advisory committee groups vary considerably in the extent to which the services they provide are integrated. All of the groups, however, are interested in reducing fragmentation and offering a consolidated package of services to their patients. They recognize that establishing a solid, widespread primary care base is essential. Some groups have already achieved this base, having adopted this strategy early on, but most of them are in the process of doing so. Strategies to build primary care bases have ranged from acquiring existing primary care delivery systems, establishing new ones, hiring new primary care physicians, freezing the hiring of specialists, and training and deploying primary care physicians in-house. Most groups have also diversified into other fields such as home health and nursing homes.

The preferred organizational strategy appears to be to set up a system where several satellite ambulatory care sites feed into a single tertiary/quaternary care site. Further, more and more services will be provided at the satellite sites. As an example, one group has a couple of mobile MRI units which rotate through their multiple satellite sites. Most of the groups, in keeping with national trends, have expanded service delivery in the ambulatory

sector. They have created formal or informal alliances with providers covering the entire spectrum of health care services, such as skilled nursing facilities, rehabilitation centers, and home health. In multispecialty groups such as those making up the GVPS advisory committee, patients tend to remain within the system for substantial portions of their care, but the potential remains for the groups to enhance patient outreach in order to manage more of their care within their own systems.

Information Systems and Information Flow

While all the groups acknowledge the importance of state-of-the-art information systems, there is wide variation in what they actually possess and currently utilize. As is typical for the industry, information systems are most developed in the inpatient arena, and least so in the ambulatory setting. Most of the groups have information system modules such as those for ordering and reporting the results of laboratory, pharmacy, and radiology tests. However, few have completely integrated these separate modules. With the exception of a pilot project at one group's satellite facility, none of the groups has a completely electronic patient medical record system, although most of them have computerized substantial amounts of clinical data. This appears to be motivated primarily by billing needs, and secondarily by a need to document for reasons of accreditation, quality assurance, utilization review, and risk management. There is also wide variation in the financial reporting systems groups have in place. Within a group, we have even observed different reporting systems being used for different areas—for example, in decisions regarding what constitutes a cost center versus a profit center. None of the sites has completely integrated clinical and financial systems.

The nature of routine feedback to physicians also varies widely. The dominant mode is the provision of utilization data to the department head, who often then reviews it with the individual physicians in the department. Some of the groups do generate comparative statistics on crude measures of physician productivity—number of patients seen, case-mix, and length of stay, etc. It appears that very little, if any, outcome data is either generated or disseminated routinely. The rationale for physician feedback in most cases appears to be financial in nature.

An associated issue is the flow of strategically-relevant information within a group practice organization. In particular, we were interested in learning how these organizations implement internal policies in response to external pressures. We wished to learn how information was received, analyzed, assessed, and transmitted among members of the organization. The manner in which groups use objective and subjective information to formulate strategy and develop norms and policies indicates how the groups will function under a new policy such as GVPS. We found a fair amount of variation in the ways the groups process information. However, the advisory committee members are remarkably similar in the manner in which they differentiate between processing clinical versus non-clinical information. Thus, processing external information, such as practice guidelines developed by specialty societies, was seen as a purely clinical function. Most of the groups report that clinical information is internalized and disseminated to clinical staff pursuant to staff consensus building and guideline customization.

In general, processing non-clinical information is a joint exercise between clinician-administrators and managers, at a seniority level that is consistent with the projected impact of the information. Thus, at most of the groups, policies regarding strategic alliances or mergers, for example, would be evaluated and decided upon at the organization's senior level. The information would then be disseminated within the ranks.

Physician Recruitment, Reimbursement and Retention

The groups are remarkably similar in their culture regarding the hierarchical rank, status, prerogatives and obligations of their physicians; although they can differ in how much physician autonomy is encouraged or permitted. Some of the groups are only now beginning to move away from a strongly individualistic tradition into a more administratively controlled tradition.

Most of the groups appear to have no problems attracting top-quality physicians. It is unclear whether there are demographic differences, although one group finds that it attracts more women physicians because of generous flex-time arrangements. Most group practices have close affiliations with medical schools (one group has its own medical school) and graduate medical education programs, and these ties serve as one source for recruiting new physicians.

The most common method of reimbursing physicians in the groups is by salary, while some mixed a salary with incentives. None of the groups have physician staffs reimbursed entirely on a fee-for-service basis. We have observed one instance where certain specialties are being reimbursed a percent of billings, and another where a partial capitation arrangement was being gradually phased in for primary care providers. There is variation among the groups in how starting salaries and raises are calculated. Some groups use published ranges of salaries as guidelines for various specialties. Others either reduce or eliminate the free market differential among specialties. In all groups, seniority is a factor in calculating compensation.

There are varying levels of sophistication in using productivity as a factor in reimbursement. Productivity may be cited as a factor in calculating year-end raises or bonuses, as are teaching, research, and administrative and collegial responsibilities. We have not observed any instances of a withhold on physicians' compensation. A minimal risk-sharing arrangement was observed in one instance, although some groups have begun to initiate risk-sharing at the department level. Groups vary in regard to whether salaries or the method of calculating them are made public. The authority to set salaries also varies by group, being vested alternatively in one single individual, in the heads of departments, or in an organization-wide salary committee.

When questioned, most physicians working at these groups say that the major reason they chose to practice there, in preference to other settings, is because of their organization's reputation for providing excellence in care. Controllable lifestyle issues are also an important reason for choosing to practice in a group setting. Physicians in these multispecialty groups

enjoy greater predictability of working hours along with freedom from administrative and bureaucratic duties such as hiring and firing, billing, and collecting. They cite the benefits of having regular hours, consistent caseloads, and adequate coverage. In addition, many physicians refer to the enhanced opportunities for patient referral and consultation provided by a group practice setting, particularly when the financial considerations of the individual physician are minimized. Many physicians enjoy the ability to combine an active clinical practice with applied research and educational activities that would otherwise be infeasible. The groups largely have very modern facilities and equipment, which are attractive to physicians. Some physicians cited the ready availability of legal and ethical consultation as a benefit of group practice. Group physicians appreciate the fact that they do not need to make the investment necessary when initiating a private practice.

Most physicians interviewed acknowledge that the benefits of group practice come at the price of ceding some degree of autonomy. The structure of group practice facilitates greater peer regulation and oversight as compared to solo practice. We found that although group physicians recognize both the costs and benefits of this diminished autonomy and choose their practice settings accordingly, there is an underlying tension that occasionally remains. One issue that frequently provokes physician discontent is that most physicians at our groups have little control over patient load and scheduling. Salary and fair reimbursement for effort is also a topic of discussion, and sometimes dissension, that may arise among physicians in group practices. We have occasionally observed a dissonance among physicians and administrators (both clinical and lay managers) regarding what constitutes appropriate workload and adequate reimbursement for physicians. Although we expect that some level of physician discontent regarding compensation will always remain, group leaders believe they can and will move to alleviate the tensions and uncertainties associated with this issue.

Use of Physician Substitutes

There is wide variation among the groups in the extent to which they routinely use physician substitutes and extenders. Some groups use nurse practitioners and physician assistants extensively in almost all departments whenever possible, while others have only now begun to initiate this process in a very limited way. Leaders at all groups, however, recognize the value of utilizing non-physician providers where appropriate. We received the impression that physician resistance to the use of substitutes was not a factor affecting their use within our groups. However, we were not able to determine whether patient resistance was a factor.

Research and Education

There is variation among the groups with regard to their participation in research and education activities. For some, such efforts constitute major centers of excellence for their organization. Some organizations operate significant programs for undergraduate and graduate medical education, nursing education, and the training of other health care workers. The participation of other groups in such activities is limited to providing facilities for affiliated educational institutions to send their students. Similarly, some organizations are

internationally and nationally recognized for their clinical and biomedical research, while others are engaged exclusively in the provision of direct health care services.

C. Managing Health Services Organizations and GVPS

Based upon the knowledge we gathered from the site visits and other consultations with the groups on the advisory committee, we have used the framework developed by Heskett (1986) to outline below some elements of strategic orientation groups will have to adopt to operate successfully within the dynamics of Group Volume Performance Standards.

Service Vision

In order to effectively manage patients' care under GVPS, Health Services Organizations (HSOs) will need to develop a new *strategic service vision* that retains several features of both traditional fee for service (FFS) practice and managed care arrangements (MC). For simplicity, in this discussion we use the term managed care narrowly to refer only to HSOs that deliver services to an enrolled, capitated population. Of course, in the industry managed care can refer to multiple modalities in terms of financing, risk, and population served. Under GVPS, HSOs face the following situation:

HSOs deliver care to a non-enrolled population of Medicare beneficiaries on a FFS basis. These beneficiaries cost Medicare an annual amount of dollars known as Reimbursements Per Unique Patient Seen (RPUPS). The proportion of RPUPS accruing to the HSO is known as the Patient Capture Ratio (PCR). A high RPUPS results from high utilization of services by a patient population, and is an indication of both case-mix complexity and the degree of efficiency and appropriateness in delivering services to this population. Thus RPUPS need to be decomposed into its two components: (1) reimbursements for services that are needed and clinically appropriate, and (2) reimbursements for services that are clinically inappropriate or provided at excessive cost, and are therefore inefficient.

A high PCR indicates that the HSO has a high level of control over the beneficiary's utilization of services. Under FFS, HSOs will want a high RPUPS, but PCR may not be a factor as long as volume of patients is high (number of beneficiaries served). For example, as long as enough patients are receiving services so as to generate sufficient revenue for the group, capturing more of each individual patient's utilization may not be a necessary goal for the group. In contrast, HSOs under MC will want a low RPUPS (utilization of services) and high PCR is assured by enrollment. Furthermore, increasing the number of beneficiaries served under MC is not always sought by HSOs since each additional beneficiary represents an unknown risk in terms of utilization. Under the GVPS model, HSOs will want both a high RPUPS (due to patient need and not inefficiency) and a high PCR. They will seek to increase the number of beneficiaries served as well. Table 1 summarizes the strategic service visions for FFS, MC, and GVPS.

TABLE I: STRATEGIC SERVICE VISIONS

| | RPUPS | | PCR | NUMBER OF BENEFICIARIES |
|----------|-------|--------------|------|-------------------------|
| | Need | Inefficiency | | |
| FFS | high | high | +/- | high |
| MC (HMO) | low | low | high | +/- |
| GVPS | high | low | high | high |

More GVPS advisory committee groups fit the FFS model versus the HMO model. Of those that fit the FFS model, there are differing degrees of how well positioned they are to enact a GVPS service vision, since there is a need to have systems in place to ensure efficiency in managing utilization.

Target Population

Under FFS, it can be said that populations target providers. Studies show that patients of FFS providers tend to be sicker with more complex problems, and need and utilize more services. MC patients tend to disenroll and in fact are sometimes encouraged to do so by their HSO when their condition suggests a need for increased levels of utilization. FFS providers have financial incentives to provide services for sicker patients since they warrant both an increased volume and intensity of services. On the other hand, MC HSOs have incentives to target populations that have less potential for high utilization. Under GVPS, HSOs have incentives to target high utilizers since they still receive FFS reimbursements to treat patients. Table II summarizes these concepts.

TABLE II: TARGET POPULATION BY RELATIVE HEALTH CARE NEEDS

| | FFS | MC (HMO) | GVPS |
|-------------|------|----------|------|
| Utilization | High | Low | High |

Currently, most of the groups we consulted are tertiary care centers and accordingly attract patients with multiple needs and high service utilization. Those with more integrated systems may also have a proportion of patients who are lower utilizers (for example, the groups with primary care satellites). One site with a long history of involvement in managed care surprisingly turned out to have patients with low utilization at the site itself, but high utilization elsewhere. Two other sites with managed care experience had intermediate utilizers. We anticipate that these profiles of the groups will change under GVPS. In particular, we expect to see these groups increase their capture ratios.

Service Concept

In his analysis of service industries, Heskett (1986) described an organization's service concept as "the way an organization would like to have its service perceived by its customers." Any HSO operating under GVPS will want to project the following message to its Medicare patients:

We are your source for high-quality health care. You are our patient. We know you, both your medical history and your family situation, and we care about you. We will make every effort not only to speed your recovery from illness, but also to keep you well in the first place.

The HSO will need to work to build a bond between the organization and the patients it serves. The patients must believe that the HSO appreciates their condition and needs, and that the HSO is doing what's best for them. Establishing this trust in patients is crucial for HSOs to succeed under GVPS. After all, the patients are free to seek services from any provider in the United States. If a physician at an HSO tells a patient that a particular test or procedure is not necessary, there are no rules or payment restrictions in place (unlike HMOs) to prevent the patient from obtaining that service elsewhere. Therefore, effective control of utilization under GVPS requires patients to believe that their HSO will provide them with the services they need, at a high level of quality. Trust is also needed to convince the patient who feels fine that undergoing a certain test today (e.g., mammography) could avoid more serious complications down the road. The patient and HSO should be in a long-term relationship that promotes wellness, rather than only an episodic relationship that treats acute illnesses.

Operating Strategy and Service Delivery System

An HSO must have an operating strategy designed to achieve its service concept. Prioritizing of decisions regarding operations, financing, marketing, human resources, and control is essential. The HSO that is successful under GVPS has deployed its resources so that strong bonds have grown between the organization and the patients it serves. Accordingly, the HSO must strategically focus on attaining the following objectives in its operations:

- (1) Patients must have timely access to services. Since the patients under GVPS have free choice of providers, the HSO must have adequate capacity and points of contact so that patients can have their health concerns dealt with promptly. Otherwise, they will go elsewhere for treatment.
- (2) Patients must have ready access to HSO facilities. As noted above, many HSOs are pursuing strategies whereby a central tertiary/quaternary care facility is linked to multiple satellite facilities. The satellite facilities themselves are an improved access route for patients, but the HSO must not overlook the difficulties faced by patients in traveling to the central site when medically necessary. Of course, many elderly and disabled patients have general transportation problems that should be kept in mind, including such matters as facility design and layout.

(3) The HSO must be devoted to providing the highest quality care possible. Trust between patient and provider cannot survive and grow if there are patient doubts about the quality of care provided.

(4) HSO physicians and other personnel must be both clinically competent and motivated to provide that "extra effort" in caring for patients. Excellent clinical judgment and skill is a necessary starting point, but those providing care at the HSO must remember that patient loyalty has to be earned.

(5) In treating patients under GVPS, the HSO must pursue a strategy of aggressive patient outreach and disease management. The HSO cannot wait for patients to present themselves for treatment of acute episodes. Instead, the HSO should have enhanced contact and communication with patients in order to foster compliance with treatment regimens and head off the development of more serious problems. Patients should have regular points of contact with the HSO so that they do not become lost in the "system."

Putting these strategic operating objectives (and others) into practice is obviously a challenging prospect for HSOs. However, we have found in our consultations with group practices that these groups are often already focused on such objectives, typically as a result of their ongoing managed care activities.

Realization of operating strategies is dependent on the structure of the HSO's service delivery system. The service delivery system represents how the organization has decided to deploy its resources in order to achieve its objectives. Since clinical staff are so essential in health care, the HSO must have in place high-quality clinical staff, along with sufficient training resources to maintain their skills. Moreover, clinicians must have the right tools available to effectively manage the care of patients under GVPS. For example, information technology to support computerized medical records, test ordering, and prescribing of medications must be in place so that physicians can make the right treatment decisions for their patients in a cost-effective manner. Information links between an HSO's multiple sites are essential. In addition, such technology can facilitate patient scheduling and monitoring/outreach activities.

The HSOs facilities should not only have state-of-the-art medical technology, but also be designed to be user-friendly. This is particularly important for the elderly and disabled population: the necessary wheelchair ramps, elevators, signage, etc. must be in place. Ground transportation to both satellite and central facilities must be readily available and easy to use.

Lastly, a successful HSO under GVPS will be devoted to continuous quality improvement (CQI) and process re-engineering. Clinical and administrative staff in the HSO must view their participation in such activities as a vital part of their jobs. This includes efforts to devise, implement, and monitor practice guidelines and clinical protocols. CQI

activities put in place monitoring systems that can identify system bottlenecks and capacity restraints. Re-engineering puts the HSO in the mode of always re-examining the organization's operations to improve effectiveness and efficiency. Control of quality and cost is essential.

Again, the groups that we have consulted are well aware of the strategic planning and implementation requirements for operating the kind of efficient and effective health care delivery system needed under GVPS, and several of them are industry leaders in such innovations.

I. Appendix B: Data

A. Main Sites

A Group Volume Performance Standards program must judge and reward participating Medicare providers on the basis of their efforts, and not because they are beneficiaries of a fortunate patient draw. Therefore, enrollment in the program must be predicated on certain requirements in terms of structure, organization, and size. The efficiencies under GVPS should be achieved through effectively managed care, not through favorable selection or concentration in a narrow range of specialties. As a result, each participating provider group may be required to have a certain range in terms of physician specialties and vertical integration of its services. Presence of utilization review and quality assurance programs and other features associated with managed care may also be prerequisite. Finally, selected sites must be large enough to generate reliable and stable RPUPS.

This research project has examined in detail twelve large physician group practices, all meeting the prerequisite organizational qualifications and all large enough to likely have the requisite stability in their RPUPS values. As members of the project's National Advisory Committee on GVPS, these sites consented to have their records reviewed and analyzed for this project, and also offered help in putting in perspective the results of our quantitative efforts. These sites, in alphabetical order, are as follows:

- **Cleveland Clinic Foundation** (Cleveland, OH)
- **Fallon Clinic** (Worcester, MA)
- **Geisinger Clinic** (Danville, PA)
- **Henry Ford Health System** (Detroit, MI)
- **Lahey Clinic Foundation** (Burlington, MA)
- **Lovelace Clinic** (Albuquerque, NM)
- **Mayo Foundation** (Rochester, MN; Scottsdale, AZ; Jacksonville, FL)
- **Ochsner Clinic** (New Orleans, LA)
- **Scott & White Clinic** (Temple, TX)
- **Upper Hudson Primary Care Consortium** (Warrensburg, NY)

Data used in our analyses were obtained from the Medicare National Claims History file (NCH), the relational database maintained by the HCFA Data Center (HDC) which brings together the Medicare service records of all types which once had to be kept in separate files. Service types include the following sources of claims:

- Hospital inpatient facilities;
- Outpatient department facilities;
- Skilled Nursing Facilities (SNFs);
- Hospices;
- Home health agencies;

- Ambulatory Surgical Centers (ASCs);
- Physicians and other professionals;
- Suppliers.

Identification of patients at each study site is made possible through the use of the PROVTAX variable in the NCH's Physician/Supplier Part B file (representing the employer identification number or EIN). Although not required by HCFA for reimbursement, this field is completed for over 95 percent of submitted Medicare claims. By using PROVTAX as a marker, we can also determine the physicians (identified by their unique physician identifying numbers or UPINS) and physician specialties represented at each site.

B. Other GVPS Candidates

Although only our twelve main sites have expressed their interest in participating in a demonstration, it is our expectation that HCFA would be interested in similar analyses of other providers as well. To add further perspective to our analyses, we sought to identify other multispecialty providers within our main sites' catchment areas for whom volume performance could also be measured. It should be remembered that these other group practices represent additional individual examples. In no way should they be considered to form a comparison group or a set of controls. Nor should their behavior be interpreted as average or representative for the local area.

Identification of "other GVPS candidates was based on within-state data from the Physician/Supplier Part B file of the NHC database. Again, assignment of patient to provider was facilitated by the file's PROVTAX variable (representing the provider Employer Identification Number or EIN). Within-state files were employed in this step because we required a number of passes through the database. Within the NCH database, a pass through a state file can usually be accomplished overnight, while a national-based pass can have as much as a thirty-day turnaround time. In using only the state files, we made the assumption that large multispecialty group practices were identifiable from the volume and types of services they supplied to within-state patients. Even a clinic with a large out-of-state clientele would reveal its multispecialty group practice structure when services provided to local patients were examined.

The first pass through each state file identified the catchment area for the main sites in the state. A site's catchment area was defined as the union of all three-digit zip code areas from which the site enrolled at least 5% of its within-state patient load. Maps of each site's catchment areas are provided at the end of this appendix. In the second pass, all EINs with patients in the catchment areas were identified, and in a third pass all Part B claims were collected and matched to the proper EIN. By examining EIN-level frequency distributions for number of patients, number of Unique Physician Identification Numbers (UPINS), and number of physician specialties, we developed descriptions of the size and composition of each EIN's practice. We then individually handpicked extra sites for our study. To be selected a site needed thousands of within-state patients, hundreds of UPINS, and a physician specialty list with either a good

representation of specific primary care physician specialties (e.g., family medicine, internal medicine, OB/GYN), or had "multispecialty" itself listed as the most frequent specialty. Up to a total of ten GVPS candidates per catchment area were selected for study.

C. Sample of Random Providers

The providers described thus far are all large multispecialty group practices ostensibly possessing the structural and organizational advantages to bring certain efficiencies to their delivery of services. To facilitate comparisons to "average practices" within the catchment areas of our GVPS sites, we also selected a number of random providers. Sufficient physician groups were selected randomly from each catchment area to generate an associated total patient enrollment of at least three thousand users of services per area. Among the providers selected in this step were large single specialty groups, smaller multispecialty and single-specialty groups, and even some solo practitioners. Because a weighting scheme based on annual patient load was employed, practices in the first category were far more likely to be chosen than those in the last. We have reserved this provider sample for future work.

D. Sample of Random Beneficiaries

For each study year (1991-1993) one hundred percent of the patients of the providers in our study (i.e., main sites and other large providers) were used in the calculations of RPUPS for each site. To examine further the possible differences among main sites in terms of measures of volume and intensity relative to their market areas, we also constructed random samples of patients within each locality. In each main site's catchment area, we selected a random sample of beneficiaries of between fifteen and twenty-five thousand individuals. Each sample represented one to five percent of all beneficiaries in an area and were generated on the basis of the last two digits of beneficiaries' HICAN identifiers, under the assumption that such numbers are randomly assigned.

E. RPUPS Calculation

At the foundation of this project's quantitative analysis was the calculation of each study site's reimbursement per unique patient seen (RPUPS). For each site two such RPUPS measures had to be computed, one based on Part B physician and supplier services (but regardless of physician provider), and the other based on all Medicare-covered services (again, regardless of provider). The calculations and construction of datasets used for the rest of our quantitative analyses required two passes through the six files making up the fifth leg of the NHC database. In the first pass the above described EIN lists were used as finder files to identify the patients of each EIN. The original output of such runs were HICAN lists, but we recognized that Medicare patients can be assigned more than one HICAN and these output lists were sent through HDC's EBW Workbench to be unduplicated and reduced. This unduplicating process reduced patient counts at our sites by approximately 10 to 15 percent. Next, using the edited HICAN lists as finder files, a second pass through all NCH files was made in order to collect and aggregate

claim amounts for patients of each EIN. Only claims from providers in the Part B file were used in the computation of the RPUPS for physician and supplier services. Institutional claim amounts from five other files (representing Part A claims and Part B outpatient and facility claims) were added in to compute RPUPS for all Medicare-covered services.

In generating RPUPS based on all Medicare-covered services, we computed separately the sum of the “pass-through” reimbursement (calculated as a state-based per diem times the length of the visit) and the reimbursement for organ transplant. These two amounts are not included as part of the recorded claim amount but are part of total Medicare services. Other reimbursements separately noted in the Part A files, such as for medical education and capital improvements, are already included in the claim amount field of the files.

F. Claims Records

For this study one hundred percent of service claims records of selected beneficiaries were accessed from the National Claims History file. Variables contained within these records include:

For the patient:

- Medicare Health Insurance Claim, which uniquely identifies the patient;¹
- Beneficiary residence ZIP Code;
- Sex;
- Birth date;
- Reason for entitlement (aged, disabled, ESRD);

For the provider:

- Provider type (physician, supplier, solo, group, etc.);
- Provider ZIP Code;
- Provider Tax Number (EIN);
- Performing provider UPIN;
- Referring provider UPIN;
- Provider specialty;

For the service:

- Procedure codes and modifiers;
- Date of service;

¹This includes the Beneficiary Identification Code which identified the relationship between the individual patient and the primary beneficiary.

- Place of service;
- Type of service (medical care, surgery, consultation, etc.);
- Diagnosis;
- Medicare reimbursement amount

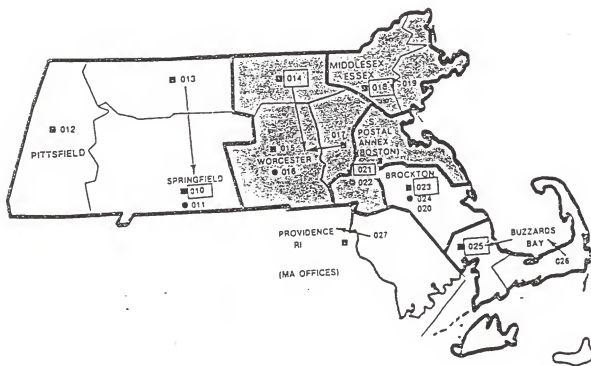
THREE-DIGIT ZIP CODE MAP

LOUISIANA



THREE-DIGIT ZIP CODE MAP

MASSACHUSETTS



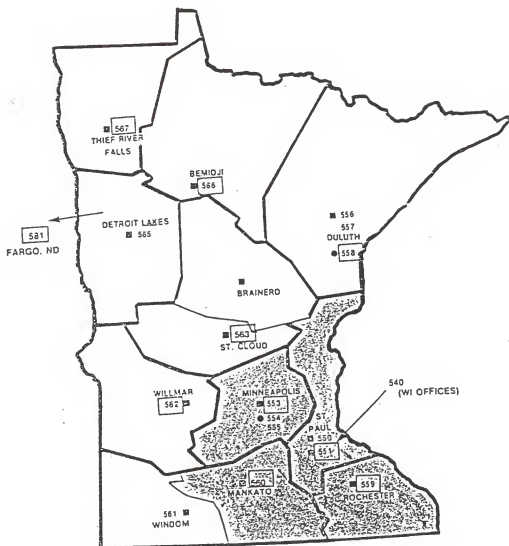
THREE-DIGIT ZIP CODE MAP

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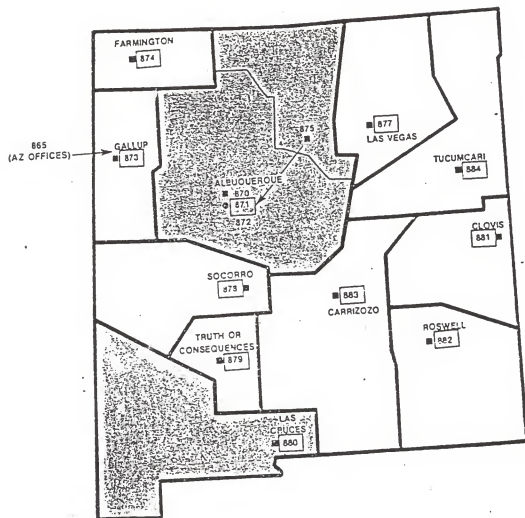


THREE-DIGIT ZIP CODE MAP

MINNESOTA

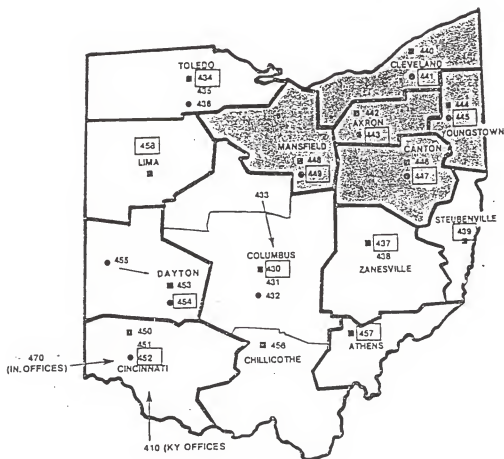


THREE-DIGIT ZIP CODE MAP NEW MEXICO



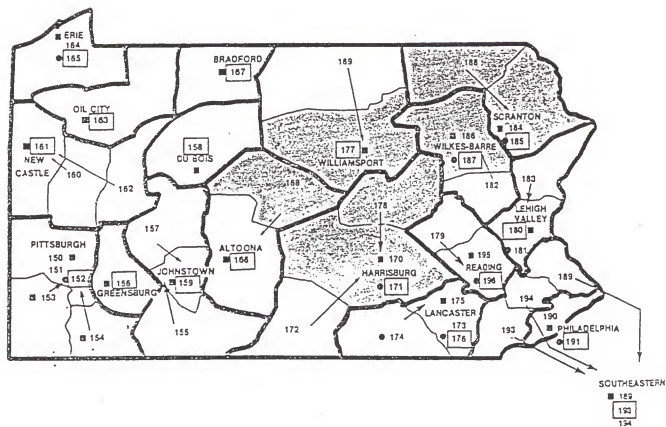
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OHIO



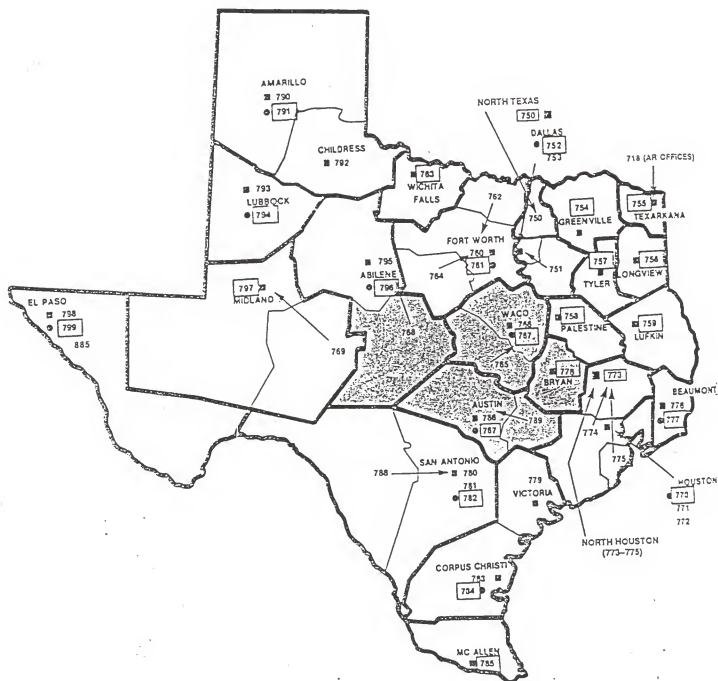
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PENNSYLVANIA



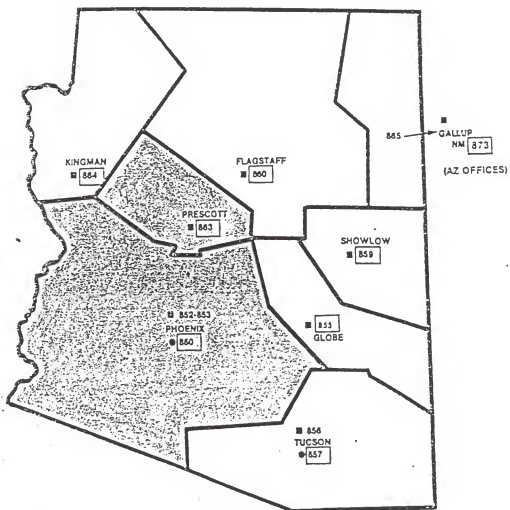
THREE-DIGIT ZIP CODE MAP

TEXAS



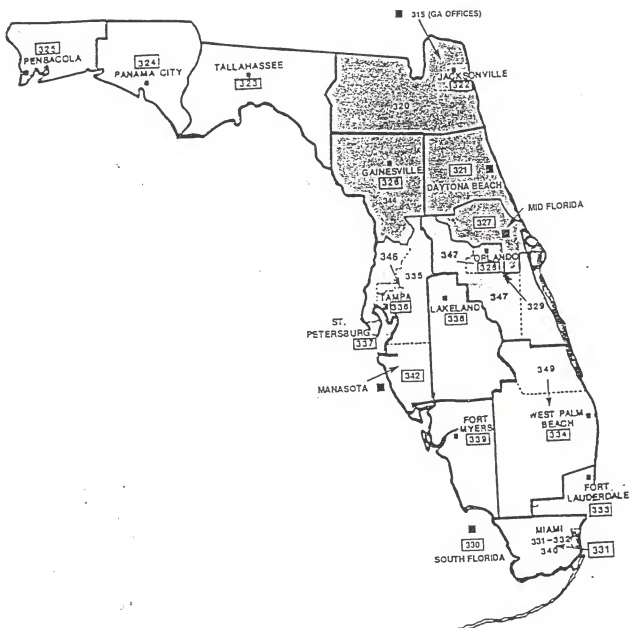
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ARIZONA



THREE-DIGIT ZIP CODE MAP

FLORIDA



I. Appendix C: Alternative Model Specifications

This appendix discusses potential modifications to the definition of RPUPS for a group operating under GVPS. HCFA could define RPUPS to exclude some beneficiaries seen by the group, exclude some reimbursements for beneficiaries counted in RPUPS, and/or account for patients' relative health status.

A. Excluding Some Beneficiaries From RPUPS

Starting with the population of beneficiaries seen by a provider during a year, it may be desirable to exclude some from calculations of RPUPS. Possible reasons for excluding some beneficiaries include:

- Enhanced stability of RPUPS over time;
- Reduced provider gaming potential;
- Closer alignment of the performance standard with a provider's influence over patient care.

A straightforward basis for excluding beneficiaries would be a minimum threshold for reimbursements to the physician group. With this approach, beneficiaries who have minimal contact with the provider (e.g., \$120 or less in reimbursements) would be excluded altogether from the group's RPUPS measure. Inclusion of beneficiaries with low reimbursements to the group does not necessarily cause problems because the definition of RPUPS in the performance year would be identical to RPUPS in the base year. Accordingly, outside utilization occurring in the base year would be expected implicitly in the volume performance standard.

Nevertheless, there could be other reasons for excluding the beneficiaries with the lowest reimbursements to the group. GVPS is intended to address efficiency in terms of patient management, which includes exercising influence over patients' use of other providers. In the case of beneficiaries with high reimbursement totals, almost all of which are to other providers, the concept of patient management is likely to be the most tenuous. Reasons for minimal contact with a single provider could be a flu shot, a single consultation, reading of lab results, etc.¹ Including these beneficiaries in the value of RPUPS could obscure the success of efforts to manage patients more closely associated with the group's practice.

Moreover, beneficiaries with very low reimbursements to the provider would constitute a "full" person in the denominator of the volume measure. Thus, yearly differences in the proportion of such "drop-in patients" might cause variations in the value of RPUPS for a group. Excluding the lowest cost beneficiaries also could reduce the advantage to a provider of

¹ Grounds for exclusion could be based on type of service as well. For example, a beneficiary could be excluded if the only services utilized at that provider were related to lab services.

increasing their proportional representation in RPUPS. A systematic increase in the fraction of low cost patients would tend to decrease the value of RPUPS, possibly giving an incorrect appearance of increasing efficiency.²

Finally, beneficiaries with low reimbursement totals across all providers need not be the focus of special policies for aggregate expenditure control. Omitting them from the measure of volume and intensity is therefore not considered a substantial problem.

Figures C-1 and C-2 show the effects of removing beneficiaries with less than \$120 for the 78 sample providers described in Appendix B. Figure C-1 shows the percentage decrease in patients from excluding beneficiaries with less than the minimum reimbursement threshold. The average number of beneficiaries decreases by 53 percent, to about 7,000. Because some of the excluded beneficiaries have low total reimbursements to all providers, and some have high totals, the effect on RPUPS could vary across providers. The average Patient Capture Ratio for each provider increases from 18 percent to 25 percent. Results for the sample providers are shown in Figure C-2.

We illustrated this option with the \$120 threshold. In a real system, the threshold could be a multiple of the conversion factor used that year for most physician visits. The threshold level might be chosen to achieve two objectives: i) a suitably low proportion of patients with high reimbursements outside and very low reimbursements inside the group; or ii) a suitably high average patient capture ratio. The dollar threshold could be adjusted each year to reflect changes in the conversion factor under the MFS.

B. Excluding Some Reimbursements From RPUPS

The definition of RPUPS also can be varied by excluding some categories of reimbursements, even though the beneficiary continues to be counted. The main reason for excluding some reimbursements would be to enhance statistical reliability of RPUPS. Accordingly, we give most consideration to excluding reimbursements in excess of individual outlier thresholds.

Although not tested by us empirically, there could be other circumstances in which some reimbursements are excluded from RPUPS. For example, it may be desirable to exclude reimbursements during the first year of Medicare coverage for very expensive and rare services. At the provider level, some services may be excluded, such as those emanating from a new department. For example, a provider that opens or acquires a new oncology center may suddenly treat a different category of patient. Services delivered in the new center may be omitted from RPUPS during the performance year until the utilization experience of the new center has been factored into the baseline RPUPS, and thereafter the target.

² This tendency also is addressed in the case-mix adjustments, discussed later.

Other reimbursements that could be excluded are for services that occur before the beneficiary's first visit in the year to the group. Arguably, a provider has little chance to manage or influence utilization that occurs before initial contact with the patient. A variation on this approach would include these reimbursements anyway, *if* the beneficiary was seen by the provider in the previous year. This option would be easier to administer since it would not require going back through the files to access service data. The applicable service bills for patients of GVPS sites could be tapped on the fly as they are received, because lists of relevant beneficiaries for such sites would always be up-to-date.

Generally for a population, most reimbursements are paid on behalf of a small fraction of patients. The measure of average reimbursements per patient (i.e., RPUPS) could be distorted by a variation in the proportion of high cost cases during a particular year. Thus, it may be useful to exclude or to discount reimbursements for individual beneficiaries that are in excess of a specified threshold. This is somewhat like stop-loss reinsurance mechanisms that shield primary insurers from excessive risks due to uncontrollable factors, but its main purpose here would be to enhance stability in measurement. To a certain extent, health status risk adjusters could compensate for changes in the incidence of high cost patients. However, this aspect of the model is intended to dampen stochastic effects on the measure of total RPUPS for each group.

Because fee-for-service payments would be made for all covered services, including when reimbursements are in excess of this threshold, there is a potential problem in that some actual reimbursements would be ignored or discounted when measuring the savings to Medicare under the GVPS. In other words, the level of true savings depends on reimbursements above the threshold as well as below the threshold. However, with reinsurance thresholds in place there is an equivalent problem that reimbursements to the site above the threshold in the base year would be ignored when setting the target. In any event, true savings should be measured using performance standards and observed levels that are not substantially altered by stochastic error. Thus, we explore the empirical question of whether model performance improves with high cost thresholds.

There are two potential approaches to setting threshold values. First, an absolute dollar amount can be specified, such as \$10,000. Reimbursements for any beneficiary in excess of \$10,000 would be discounted or not counted when calculating the provider's average reimbursements per patient. Second, an amount can be specified for a given provider that depends on the distribution of reimbursements for that provider's patients. Providers seeing patients with higher average reimbursements could have higher thresholds than other providers. Choosing threshold values would depend on the mean and variance of reimbursements per patient. We tested only constant absolute dollar values for all providers.

In order to study the impact of a high cost threshold, we chose for this report the simpler approach of merely ignoring all reimbursements in excess of \$10,000 for physician and supplier services, or \$30,000 for all Medicare services. The \$10,000 threshold affected approximately the

top 2% of beneficiaries chosen in the overall sample, and the \$30,000 threshold affected about 4 to 5% of beneficiaries.

We chose to truncate the reimbursements over the threshold in order to illustrate the potential of this approach to reduce variability. However, reimbursements for any Medicare beneficiary in excess of the specified threshold could be discounted by some amount, such as 50 percent. Each dollar of reimbursements (to all providers) for a beneficiary in that category in excess of the threshold would count as 50 cents in the RPUPS. This option may be desirable since cost consciousness, albeit at a reduced level, would apply to all services. Because the same rules apply for setting the target as measuring outcomes, the diminishing effect of the thresholds on mean values is counterbalanced.

C. Health Status Risk Adjusters

The measure "Reimbursements Per Unique Patient Seen" reflects the mix of patients seen by the group. Changes over time in case mix might be large enough to diminish the validity of comparisons between actual and target rates in the performance year. If so, it would be important to adjust either the target or observed RPUPS in order to standardize the health status distributions.

The relative health status of each patient can be described in terms of risk classification systems. This study uses a two-tiered classification system, such that:

- **Beneficiaries were first categorized hierarchically by Reason for Entitlement to Medicare: ESRD, Disabled, Aged.** A person with any claim during the year indicating ESRD entitlement was categorized as 'ESRD' for that year. Remaining beneficiaries with any claims indicating Disabled status were categorized as 'Disabled' for that year. All others were categorized as 'Aged' for that year.
- **Aged and Disabled beneficiaries were categorized by ACG.** This system classifies patients into one of 51 categories based on all of the diagnoses observed for medical service claims during the year (Weiner, 1992).³ Table C-1 shows a list of the patient categories defined by that system.

A brief description of the ACG methods is offered here. The Johns Hopkins Ambulatory Care Group System (ACGs) is a case-mix system for categorizing patients based on their age, gender, and ICD-9-CM codes presented in claims over a given time period (typically one year). Initially, over 6,000 ICD-9-CM diagnostic codes are assigned to one of 34 clusters known as Ambulatory Diagnostic Groups (ADGs). A patient may be simultaneously placed into anywhere

³ We basically took the current version of the ACG system "off the shelf." Later versions of ACGs, or entirely different classification systems, could be substituted.

from 1 to 34 ADGs. Those ADGs that are similar in regard to persistence or recurrence of the diagnoses contained in them are then collapsed into twelve categories known as Collapsed ADGs (CADGs). Next, Patients are assigned to clinically logical and mutually exclusive groupings known as Major Ambulatory Categories (MACs). Finally, statistical variance techniques are used to split MACs into 51 mutually exclusive ACGs based on age, gender, and combination of ADGs.

Depending on the data available and also the research goals of ACG patient classification, the range of ICD-9-CM diagnosis codes extracted from patients claims for inclusion in the ACG grouper algorithm can vary. We used all ICD-9-CM diagnosis codes (both inpatient and outpatient) recorded on Medicare claims to place beneficiaries in annual ACG categories.⁴

The mean reimbursements per patient within each cell were determined. The ratio of the mean dollars for each cell to the total RPUPS for the provider constitutes the relative average reimbursements for beneficiaries in the cell. For any base year, there will be a certain distribution of patients across the cells, and the weighted average of the mean dollar amounts for each cell is the value of RPUPS for the provider.

Figures C-3 through C-5 show the proportion of patients and reimbursements per cell in 1992 for one multispecialty physician group. The patient population seen by that provider in 1992 was categorized hierarchically according to the reason for entitlement, and (except for ESRD patients) by ACG. Beneficiaries with ESRD entitlement accounted for 2.3 percent of patients (Figure C-3), 9.8 percent of reimbursements for physician and supplier services (Figure C-4), and 3.7 percent of reimbursements for all Medicare covered services (Figure C-5). Disabled beneficiaries accounted for 9.1 percent of patients (Figure C-3), 10 percent of physician and supplier reimbursements (Figure C-4), and 9.2 percent of all Medicare reimbursements (Figure C-5). Aged beneficiaries accounted for 88.7 percent of patients (Figure C-3), 80.1

⁴ The creators of the ACG System at Johns Hopkins University have provided the following guidelines for ACG-eligible diagnoses:

Since ACGs were originally designed to predict the need for ambulatory health care resources, assignment of an ACG is usually accomplished using diagnosis codes from ambulatory claims/encounters. Historically, JHU has instructed most users of ACGs to select diagnosis codes from "face-to-face" ambulatory claims (e.g., claims where a physician performed an evaluation or management service). Since early in 1992 we have been experimenting with more inclusive diagnosis code selection strategies.

We have assigned ACGs using all diagnosis codes that appear on a claim (including inpatient diagnoses) as well as diagnosis codes from all professional services rendered in noninstitutional (ambulatory) settings. While formal sensitivity tests have not been performed, we are confident that these approaches do not compromise the underlying assumptions of the ACG assignment process... We have analyzed the explanatory power of these approaches and found them to be comparable to ACG assignment using only "face-to-face" ambulatory diagnoses. (Johns Hopkins ACG Case Mix System Applications Manual, 2nd Ed., July 1993, Johns Hopkins University, p. 11-12).

percent of physician and supplier reimbursements (Figure C-4), and 87.1 percent of all Medicare reimbursements (Figure C-5). Among both the disabled and aged beneficiaries, there were concentrations of patients and dollars in relatively few ACGs. For both the disabled and aged beneficiaries, the largest concentrations were in four ACGs (41, 44, 49 and 50), which represent situations involving multiple disorders (see Table C-1). Among the aged patients, Figure C-5 shows that these four ACG categories accounted for large proportions of total reimbursements: 10.5 percent (ACG 41), 16.1 percent (ACG 44), 32.6 percent (ACG 49), and 20.3 percent (ACG 50).

In a subsequent year, the distributions of patients and reimbursements across the cells could change. For example, there may be proportionally more ESRD patients. However, the performance standards are based on the group's experience and a specified rate of increase. Implicit in the performance standard, therefore, is the distribution of patients in the base year. Since ESRD patients are likely to be relatively expensive, we may need to adjust for changes in case mix. Either the observed RPUPS could be standardized to the distribution of patient in the base year, or vice versa.

Table C-2 shows the effects of reweighting the case mix for the multispecialty group shown in the previous figures, using distributions of patients and mean reimbursements per cell from different years. The table contains three sections, reflecting observed mean dollar amounts per cell taken from 1991, 1992 and 1993, respectively. Within each of the table's three sections, the mean reimbursements per case-mix cell for Year α (1991 in the first section) are multiplied by the case mix actually observed in Years ϵ and θ (1992 and 1993). This yields estimates for $RPUPS_{\epsilon}$ and $RPUPS_{\theta}$ based on applying the 1991 (Year α) per-cell reimbursement rates to the case-mix cell distributions of patients occurring in 1992 and 1993 (Years ϵ and θ). Thus, the *actual* RPUPS for physician/supplier services in 1991 was \$1,810, while the *estimated* RPUPS for 1992 and 1993 were \$1,873 and \$1,891, respectively. Similarly, in the bottom section of Table C-2, the actual RPUPS for physician/supplier services observed in 1993 was \$1,676 with estimates of \$1,600 and \$1,659 for 1991 and 1992, respectively.

Across each row of Table C-2, the values of RPUPS for this provider ascend over time, suggesting that the proportion of sicker patients got larger over time. In other words, the distribution of patients tended to change in the direction of higher concentrations in cells with larger mean dollar amounts. Between 1991 and 1992, this change affected the RPUPS for physician and supplier services by about 3.7 percent (using 1992 mean dollar values per cell). For 1993, the cumulative change was about 4.6 percent. Comparing the results using 1991, 1992 and 1993 mean dollars per cell reveals considerable agreement in the magnitude of case-mix changes over these years. This suggests that the relative mean reimbursement amounts per cell are fairly stable for the provider across the years.

Table C-2 also reveals that changes in case mix had larger proportional effects on RPUPS values for all Medicare covered services. Using once again 1992 mean dollar values per cell, the estimated RPUPS changed by about 4.2 percent from 1991 to 1992. Between 1991 and 1993, the

cumulative change was approximately 5.4 percent. Comparing these results to those using 1991 or 1993 mean dollar values per cell reveals again general agreement in the magnitude of case-mix changes over the years, with the trend over time toward a higher-severity case mix.

Table C-3 shows a similar analysis of changes in case mix, but uses the modified definition of RPUPS in which beneficiaries with less than \$120 in reimbursements to the provider are excluded. As before, the results are similar using 1991, 1992 or 1993 mean reimbursement values to define the relative costliness of patient categories. Imposing the minimum threshold seems to reduce the magnitude of the change in case mix between 1991 and 1992, from 3.7 percent (Table C-2) to 2.3 percent (using 1992 mean dollar values per case-mix cell for physician and supplier services). However, this desirable effect does not occur for cumulative changes between 1991 and 1993. The observed changes increase, from 4.6 percent without the minimum threshold (Table C-2) to 5.5 percent. It appears that excluding this part of the distribution does not necessarily improve the statistical reliability of RPUPS for physician and supplier services.

Table C-4 carries out the same analysis using the high cost outlier thresholds, which truncate reimbursements for individuals in excess of \$10,000 for physician and supplier services and \$30,000 for all Medicare covered services. For physician/supplier services, there seems to be modest but consistent improvement using the threshold. Using 1992 mean dollar values per cell as in Table C-2, the magnitude of changes in case mix decreases by roughly one-half a percentage point for both the 1991-1992 comparisons (3.7 to 3.2) and the 1991-1993 comparisons (4.6 to 4.2). This suggests that the influence of outliers can lead to differences in RPUPS across years that are not recognized by the risk adjustment system.

D. Implications of Alternative Definitions

Figures C-6 through C-9 show results of provider versus market level increases in which beneficiaries with less than \$120 in reimbursements to *that provider* were excluded from RPUPS measures. The random beneficiary samples were used to estimate market level changes, however, there is no specific provider referenced. In general, the data points tend to scatter more and the average absolute percentage deviations tend to increase, compared to results shown in Figures 5 through 8. For the selected physician groups as well, in Figure C-8 several points move quite a distance away from the origin—for instance, Groups K, M and N. For the following year, in Figure C-9, there also are big changes—notably for Groups K and L. Given the *generally* worse performance of the models that exclude some beneficiaries, these big changes may be considered suspect until any further vindicating evidence is obtained.

Figures C-10 and C-11 show the 1991-1993 cumulative results for models that exclude beneficiaries with less than \$120 in Medicare reimbursements to the provider. As before, the points tend to scatter more than without the minimum threshold and the average deviations are greater. For physician and supplier services, the average absolute percentage deviation increases from 8.1 percent to 9.6 percent; for all Medicare services, the increase is from 9.5 percent to 11.9

percent. Most of the selected providers remain in the third quadrant in Figure C-11. Groups L, N and O appear to perform worse with the threshold, while Groups K and M appear to perform better. Again, at this point it is unclear whether these significant changes are desirable given the poorer statistical performance of the model with minimum reimbursement thresholds.

E. Adjustments for Changes in Case Mix

The results presented so far have not taken into account possible changes in the case mix of Medicare patients seen by a provider. We anticipate that the mix of patients seen by a large, mature provider organization will exhibit less difference over time than exists *between* providers during any given year. Consequently, the pressure put on a risk adjustment system is likely to be less in this context than, for example, accounting for differences between local areas or enrolled populations.

We investigate the effects of changes in case mix in two ways. First, we categorize Medicare patients into risk cells, reflecting different relative expected reimbursement rates. Second, we look at the influence of high cost outlier patients on the stability and validity of RPUPS.

Each year we can analyze changes that take place in the distribution of patients across these cells. The proportions of Medicare patients seen may tend to shift toward (or away from) cells with higher relative costs, suggesting sicker (or healthier) case mixes. The observed RPUPS can be standardized to reflect the original (i.e., the base year) distribution of patients, in order to remove the influence of changes in case mix. An equivalent approach would be to standardize the target level to reflect the distribution of actual patients seen in the performance year. We might prefer the latter policy because savings estimates in the performance year depend on who the provider saw *this year* and not some previous year.

To classify Medicare beneficiaries according to relative costliness, we chose two types of categories: Reason for Medicare entitlement, and Ambulatory Care Groups (ACGs). In order to make case mix adjustments for a particular group over time, the following steps were taken:

- The patient populations in the base and performance years were partitioned separately into 85 risk cell categories. First, beneficiaries were separated according to reason for entitlement: ESRD, Disabled, and Aged. The Disabled were placed into 40 ACG categories, while the Aged were placed into 35 ACG categories.⁵

⁵ There are fewer categories available than 103 (1+51+51) because some ACG categories include age criteria. For example, an Aged beneficiary cannot be placed in ACG 2 which only applies to patients ages 2-5 years.

- For the hypothetical performance year, we determined the percentage distribution of patients across cells and the mean reimbursements for patients in each cell. These are the components of the actual value of RPUPS in the performance year. That is, the sum of the products for each cell in which the percentage of patients is multiplied by the mean reimbursement amount.
- The observed patient distribution in the performance year was applied to the base year, using reimbursement dollars per patient in the base year. In other words, the mean reimbursements per cell in the base year were reweighted using the patient distribution in the performance year. This results in a new, adjusted value of RPUPS for the base year that estimates what a hypothetical patient population for the group (i.e., that mirrors the performance year) would have experienced in Medicare reimbursements.
- To the adjusted value of RPUPS for the base year we applied a market level rate of increase. (The market rate of increase also was adjusted for changes in case mix, using the same two-tiered classification system). This is an adjusted performance standard that now reflects the *same* health status distribution that actually occurred in the performance year, and that only *adjusts for* changes in patients' health status relative to average changes for all local providers.

Figures C-12 through C-17 show results for adjusting for health status the performance of groups for the years 1991-1992, 1992-1993, and 1991-1993. Results are shown for all services and for physician and supplier services only. These figures depict deviations from the targets that are based on average rates of growth for the respective markets.⁶ For all services, the figures show three measures of performance for each group:

- Unadjusted RPUPS (Unadjusted: black bar);
- RPUPS adjusted for the 86 patient health status categories as described earlier. (HS Adjusted: gray bar);
- RPUPS adjusted for health status and also truncated at a maximum reimbursement level of \$30,000 per patient (HS / Outlier: white bar).

For physician and supplier services, the figures show only the first two measures of performance for each group, i.e., without the high cost outlier adjustment. The 10 groups are ordered from left

⁶The MFS was implemented during the course of this 1991-1993 period. Local procedure codes were phased out in favor of CPT-4 codes. In addition, specialty-based differentials in physician payment were eliminated after 1991. The impact of these changes on any provider's rate of growth relative to the market is uncertain at this time.

to right (i.e., from 1 to 10) based on the unadjusted value of their 1992 RPUPS for all services relative to the target RPUPS for these groups (Figure C-12). Group 1 has the greatest deviation above the target while Group 10 has the greatest deviation below the target (see the black bars in Figure C-12). The groups are presented in the same order for all subsequent figures.

In Figure C-12, four groups (Groups 1 through 4) exceeded the unadjusted 1992 RPUPS target for total Medicare services, with Group 1 approximately 4 percent over the target. In most cases, adjusting for health status makes groups' performance appear worse. After adjusting for health status, Groups 6 and 8 switch from being below to being above their targets, while Group 1 switches from being above to being below its target. Truncation of high cost outlier reimbursements also leads to mixed results in the apparent performance of the groups.

For physician and supplier services, Figure C-13 shows that eight of the ten groups have unadjusted 1992 RPUPS under the target, suggesting that groups may be able to better manage this component of services. In most cases, health status adjustment appears to worsen the performance.

From 1992 to 1993, more groups were under their unadjusted RPUPS target for all services, with Group 10 over 10 percent below target (Figure C-14). After adjusting for health status, Groups 1 and 4 appear better relative to their targets. For the rest of the groups, health status adjustment leads the groups to appear worse in comparisons to targets. Overall, truncation tends to weaken apparent performance as well.

Similar to the previous year, groups tend to be more successful in being under target for physician and supplier services (Figure C-15). Only Group 9 was above the unadjusted RPUPS target. However, as before, health status adjustment typically does not improve performance (with the exceptions of Groups 1 and 4).

For 1991 to 1993, eight groups performed below the unadjusted 1993 RPUPS target for all services (Figure C-16). Group 10 appears to perform best, being almost 10 percent under target. Adjustments to target for health status and truncation have effects that are similar to those observed previously. For physician and supplier services (Figure C-17), eight groups perform below target for unadjusted RPUPS. Adjustment for health status improves the performance of Groups 1 and 4 but weakens the performance of the remaining groups.

Overall, for these performance years, Groups 8 and 10 were most successful in performing below the target for all services, while Group 2 was least successful. In terms of physician and supplier services, Groups 5 and 10 had the best performance, and Groups 2, 6, and 9 the worst over the three years.

If groups exceed their unadjusted target, one explanation may be that their case-mix has gotten worse. Similarly, if they are under their target, one explanation may be that their case-mix has gotten better. Adjustment for health status should help to eliminate deviance due to this

factor. We attempted to adjust for health status in order to see the extent to which apparent performance would change. In general, we found that group performance tended to worsen after health status adjustments.

At this point we cannot be sure that the health status adjustment approach we explored is adequate. Some of our concern stems from the concentration of patients and reimbursements in so few of the health status cells, as was shown in Figures C-3 through C-5. This pattern was observed for all of the groups, and even the random beneficiary samples drawn from each market area.

Other concerns relate to findings for the random samples in our study. For any case-mix adjustment method, the health status in a random sample of beneficiaries should be expected to remain rather constant from one year to the next. In order to test this, we drew a random sample of beneficiaries from each of our groups' market areas, and applied the same health status adjustment methodology to them. Without exception, the apparent severity of illness in these random beneficiary samples increased over the three-year period. Severity of illness for the ten groups appeared to increase as well, but at a lower rate than that observed in their respective markets.

There could be several explanations for this. One is that coding and documentation may have become more accurate and extensive over time. This would have consequences for the ACG classifications if the number of diagnosis codes presented on claims increased over this period. Indeed, more ICD-9 codes were reportable on facility claims as of 1992, and we used diagnostic codes from all places of service in the case-mix adjustments. Also, providers may be exhibiting greater sensitivity to accurate coding as a by-product of the implementation of MFS, or the fact that claims processing procedures of payers other than Medicare may have become more demanding.

The faster rate of increase in the severity of illness for the market versus the ten groups may be due to the fact that the coding practices of providers in the market lagged behind that of the groups at the start of the three-year period. Subsequent improvements in the coding practices of the average provider may have had the effect of artificially lowering the observed performance of the groups. Since the majority of our groups have well-developed managerial and administrative support structures, they were likely coding more accurately and completely before the average provider in the market. As mentioned above, the implementation of MFS eliminated payment differentials based on local codes and physician specialties. This change might have affected the 10 groups and their markets differently, so that the severity of illness in the markets increased at a faster rate.

A second explanation may be that ACG classification may be an inappropriate health status adjustment tool for Medicare beneficiaries. The ACG system was first developed for assessing the provision of ambulatory care, and was initially based on using diagnoses recorded during ambulatory encounters. The approach used in this project included inpatient diagnoses as

well, and the Medicare population uses relatively more inpatient services. In addition, because most of the 10 groups are sophisticated tertiary/quaternary providers, the patients seen by these groups require even more inpatient services than Medicare beneficiaries in general. As a result, any weaknesses in using the ACG system in assessing the use of inpatient services is exacerbated for the groups at hand.

We continue to explore the application of ACGs and other case-mix methodologies to GVPS. Other health status adjusters could ultimately prove more appropriate for the Medicare beneficiary population.

F. Adjustments for Changes in Pricing

Medicare make changes to both its procedure codings and their corresponding reimbursement values every year. Under GVPS the apparent stability of RPUPS could be affected by such changes. In addition, there are yearly changes in reimbursements across geographic areas, for example due to changes in wage scales. To deal fairly with these issues it may be necessary to control for geographic factors and for Medicare changes in coding and pricing.

In order to standardize claim reimbursements in the light of geographic differences, we would need to divide our reimbursements by appropriate geographic factors, which vary by type of service:

- Inpatient hospital payments are adjusted for each MSA or rural county in a state;
- Physician payments are adjusted by carrier defined localities;
- Other services are cost-based but would require a similar adjustment.

To control for changes in Medicare pricing and procedure codings which show up over time, a refined approach would be to create two RPUPS for each fiscal year. The one reflecting actual payments would be compared with the GVPS target to determine performance and whether or not a reward is to be granted. The second RPUPS would be created a year later reflecting simulated payments per claim after crosswalking to new procedure and pricing files to show what would have been paid if the new year's rules had been in effect. This latter RPUPS would form the baseline measure on which the next GVPS target would be based.

The following example shows how this might work:

| | | | |
|---------------|--------|--------------------|--------------------------|
| Actual code: | 1234 | RVU = 1.00 (CF=30) | Reimbursement = \$30.00 |
| Changed code: | 1234.1 | RVU = 1.10 (CF=33) | Reimbursement = \$33.00. |

In the example a reimbursement of \$30.00 is used in calculating the RPUPS for the year of the claim. However, the next year the payment is counted as \$33.00 in calculating the baseline RPUPS for computing GVPS target, this to reflect that the cost for the corresponding procedure during the new year would have been the higher amount.

In our statistical analyses we compare both original and adjusted RPUPS to learn whether refinements to remove price effects actually improve stability, as we hypothesize that they will. Obviously, geographic adjustments would be unnecessary if wage increases and other regional factors changed more or less in unison. After all, national changes are suppose to be dealt with through the performance standards. Also, it must be admitted that a retrospective effort to adjust for pricing and procedure changes could be detrimental to the underlying goals of the GVPS program by diminishing evidence "procedure creep," whereby providers make upward modifications in their procedure codes to compensate for expected payment reductions due to refinements in Medicare's reimbursement systems.

G. Comparisons of Procedure Mix: Local Averages Versus a Provider's Patients

We have proposed models in which the rate of increase applied to a group's baseline value of RPUPS would be based on the average projected rate of increase for the local area. This is in keeping with the premise that groups could actively manage their patients' care, and two related assumptions:

- The group's management expertise includes primary care, or evaluation and management services;
- The group's patients are broadly representative of the local Medicare population.

The potential for these assumptions to be violated raises two types of questions regarding the GVPS models:

- Should criteria for eligibility include tests about a group's mix of patients or services, and the degree of similarity to market averages?
- How robust is the basic model in which market level increases are applied to specific groups' patients?

Section IX of the report discusses possible eligibility criteria that would require expertise in the management of patients' services. The criteria could be expanded to make sure a group does resemble the market, in which case the average rate of increase would apply. However, *some* differences can be expected for many, if not all groups. We briefly examine two possible methods to adjust rates of increase for a group's patient population that does not resemble sufficiently the local patient population. One method is based on patient case mix, and a similar alternative is based on procedure mix.

The numerator of a group's RPUPS includes all reimbursements for services to the patients seen by the group, regardless of the provider. In the proposed model, a group's patient population is basically a small subset of the "local" Medicare population, since areas are defined by the patients' counties of residence. Therefore, the expected rate of expenditure growth at the market level is an average that includes the provider's own patients and the array of services they use.

The expected rate of growth in expenditures can differ significantly across categories of service and perhaps categories of patients. Reimbursements for services can be arrayed along dimensions that include type or place of provider, and type of procedure. For example, Medicare services can be divided into inpatient hospital, outpatient facility, home health, physician, etc. Furthermore, reimbursements within these groupings can be divided by procedure. For example, physician reimbursements can be divided into more refined categories. Patients can be arrayed along categories like those used in this study, e.g., reason for entitlement or diagnostic mix.

Whichever array is chosen, i.e., services or patients, the reimbursements at the market level and the group level can be categorized accordingly. We can calculate the distribution of reimbursements across the categories. For example, at the market level, 60 percent of reimbursements may be for inpatient hospital. For a particular group, 70 percent of the reimbursements may be for inpatient hospital. Assuming growth in expenditures for inpatient hospital is different than the average for other services, we can reweight the distribution of reimbursements at the market level to mimic that of the group. In the example, we could increase the weight given to inpatient hospital reimbursements when setting the market level rate of increase that is applied to the group.

A simpler adjustment could be based on Part A versus Part B reimbursements. More elaborate adjustments could be based on type of procedures, such as the method of service classification developed by Berenson and Eggers for HCFA. They divide physician procedures into: Evaluation and Management, Procedures, Imaging, Tests, and Other. Each of these categories also is divided into between four and eight subcategories. Alternatively, reimbursement rates could be weighted in an analogous fashion to match the distribution of patients seen by the group.

The effect of refinements such as these would be to project the rate of increase for the group's particular mix of patients (measured as patient or service mix). The increases still would be based on the experience and expectations for the *average* provider in the market, adjusted to simulate a hypothetical average provider with the particular group's mix of patients.

TABLE C-1: AMBULATORY CARE GROUP (ACG) CATEGORIES

| ACG | ACG DESCRIPTION |
|-----|--|
| 1 | Acute Minor, Age < 1 |
| 2 | Acute Minor, Age 2-5 |
| 3 | Acute Minor, Age 6+ |
| 4 | Acute: Major |
| 5 | Likely to Recur, Without Allergies |
| 6 | Likely to Recur, With Allergies |
| 7 | Asthma |
| 8 | Chronic Medical, Unstable |
| 9 | Chronic Medical, Stable |
| 10 | Chronic Specialty |
| 11 | Ophthalmological/Dental |
| 12 | Chronic Specialty, Unstable |
| 13 | Psychosocial, Without Psychosocial Major |
| 14 | Psychosocial, With Psychosocial Major, Without Psychosocial Minor |
| 15 | Psychosocial, With Psychosocial Major, With Psychosocial Minor |
| 16 | Preventive/Administrative |
| 17 | Pregnancy |
| 18 | Acute Minor and Acute Major |
| 19 | Acute Minor and Likely to Recur Discrete, Age < 1 |
| 20 | Acute Minor and Likely to Recur Discrete, Age 2-5 |
| 21 | Acute Minor and Likely to Recur Discrete, Age > 5, Without Allergy |
| 22 | Acute Minor and Likely to Recur Discrete, Age > 5, With Allergy |
| 23 | Acute Minor and Chronic Medical: Stable |
| 24 | Acute Minor and Eye/Dental |
| 25 | Acute Minor and Psychosocial Without Psychosocial Major |
| 26 | Acute Minor and Psychosocial With Psychosocial Major, Without Psychosocial Minor |

| ACG | ACG DESCRIPTION |
|-----|--|
| 27 | Acute Minor and Psychosocial with Psychosocial Major and Minor |
| 28 | Acute Major and Likely to Recur Discrete |
| 29 | Acute Minor/Acute Major/Likely to Recur Discrete, Age < 2 |
| 30 | Acute Minor/Acute Major/Likely to Recur Discrete, Age 2-5 |
| 31 | Acute Minor/Acute Major/Likely to Recur Discrete, Age 6-11 |
| 32 | Acute Minor/Acute Major/Likely to Recur Discrete, Age > 5, Without Allergy |
| 33 | Acute Minor/Acute Major/Likely to Recur Discrete, Age > 5, With Allergy |
| 34 | Acute Minor/Likely to Recur Discrete/Eye & Dental |
| 35 | Acute Minor/Likely to Recur Discrete/Psychosocial |
| 36 | Acute Minor/Acute Major/Likely to Recur Discrete/Eye & Dental |
| 37 | Acute Minor/Acute Major/Likely to Recur Discrete/Psychosocial |
| 38 | 2-3 Other ADG Combinations, Age < 17 |
| 39 | 2-3 Other ADG Combinations, Males Age 17-34 |
| 40 | 2-3 Other ADG Combinations, Females Age 17-34 |
| 41 | 2-3 Other ADG Combinations, Age > 34 |
| 42 | 4-5 Other ADG Combinations, Age < 17 |
| 43 | 4-5 Other ADG Combinations, Age 17-44 |
| 44 | 4-5 Other ADG Combinations, Age > 44 |
| 45 | 6-9 Other ADG Combinations, Age < 6 |
| 46 | 6-9 Other ADG Combinations, Age 6-16 |
| 47 | 6-9 Other ADG Combinations, Males Age 17-34 |
| 48 | 6-9 Other ADG Combinations, Females Age 17-34 |
| 49 | 6-9 Other ADG Combinations, Age > 34 |
| 50 | 10+ Other ADG Combinations |
| 51 | No Visits and/or No ADGs |

Source: Weiner, J.P. "A Clinician's Guide to the Johns Hopkins Ambulatory Care Group (ACG) Case-Mix System". 1992 Johns Hopkins University.

Table C-2: Effects of Changes in Case Mix* on RPUPS Values (One Group)

1991 Mean Dollars Per Cell

| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$1,810 | \$1,873 | \$1,891 |
| % Change from 1991 | -- | 3.5 | 4.5 |
| All Medicare | \$6,085 | \$6,330 | \$6,390 |
| % Change from 1991 | -- | 4.0 | 5.0 |

1992 Mean Dollars Per Cell

| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$1,681 | \$1,743 | \$1,758 |
| % Change from 1991 | -- | 3.7 | 4.6 |
| All Medicare | \$6,490 | \$6,763 | \$6,838 |
| % Change from 1991 | -- | 4.2 | 5.4 |

1993 Mean Dollars Per Cell

| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$1,600 | \$1,659 | \$1,676 |
| % Change from 1991 | -- | 3.7 | 4.8 |
| All Medicare | \$6,620 | \$6,906 | \$6,984 |
| % Change from 1991 | -- | 4.3 | 5.5 |

Source: National Claims History file, 1991-1993.

* Derived from Ambulatory Care Groups.

Table C-3: Effects of Changes in Case Mix* RPUPS Values, **With Minimum Threshold****

1991 Mean Dollars Per Cell

| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$2,276 | \$2,325 | \$2,395 |
| % Change from 1991 | -- | 2.2 | 5.2 |

1992 Mean Dollars Per Cell

| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$2,118 | \$2,166 | \$2,234 |
| % Change from 1991 | -- | 2.3 | 5.5 |

1993 Mean Dollars Per Cell

| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$2,029 | \$2,075 | \$2,141 |
| % Change from 1991 | -- | 2.3 | 5.5 |

Source: National Claims History File.

* Derived from Ambulatory Care Groups.

** Minimum reimbursement threshold to provider of \$120.

Table C-4: Effects of Changes in Case Mix* RPUPS Values, With Outlier Threshold**

1991 Mean Dollars Per Cell

| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$1,709 | \$1,762 | \$1,780 |
| % Change from 1991 | -- | 3.1 | 4.2 |
| All Medicare | \$5,245 | \$5,425 | \$5,476 |
| % Change from 1991 | -- | 3.4 | 4.4 |

1992 Mean Dollars Per Cell

| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$1,602 | \$1,654 | \$1,670 |
| % Change from 1991 | -- | 3.2 | 4.2 |
| All Medicare | \$5,396 | \$5,583 | \$5,640 |
| % Change from 1991 | -- | 3.5 | 4.5 |

1993 Mean Dollars Per Cell

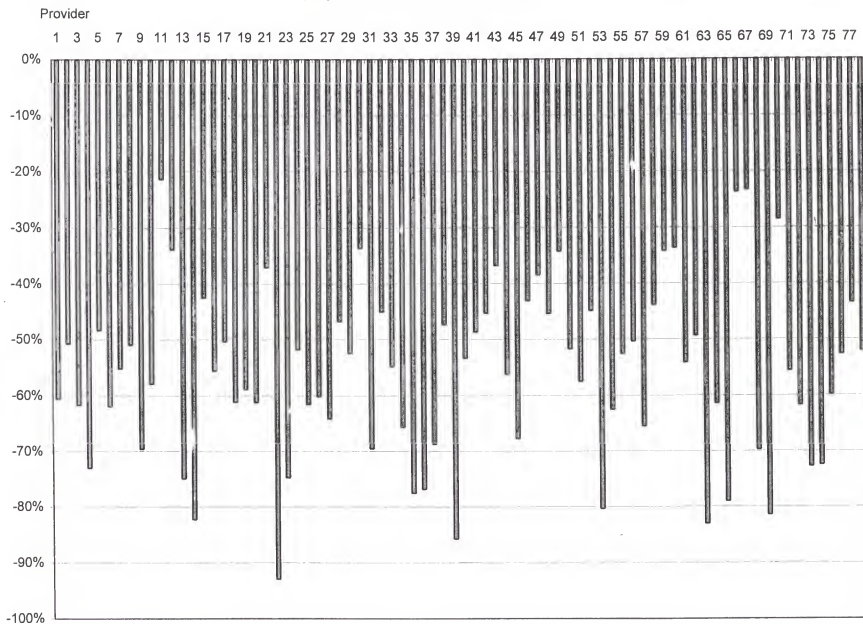
| Scope of Services | 1991 Case Mix | 1992 Case Mix | 1993 Case Mix |
|--------------------|---------------|---------------|---------------|
| Physician/Supplier | \$1,543 | \$1,595 | \$1,612 |
| % Change from 1991 | -- | 3.4 | 4.5 |
| All Medicare | \$5,461 | \$5,654 | \$5,711 |
| % Change from 1991 | -- | 3.5 | 4.6 |

Source: National Claims History File.

* Derived from Ambulatory Care Groups

** Outlier thresholds are \$10,000 for physician and supplier services, and \$30,000 for all services.

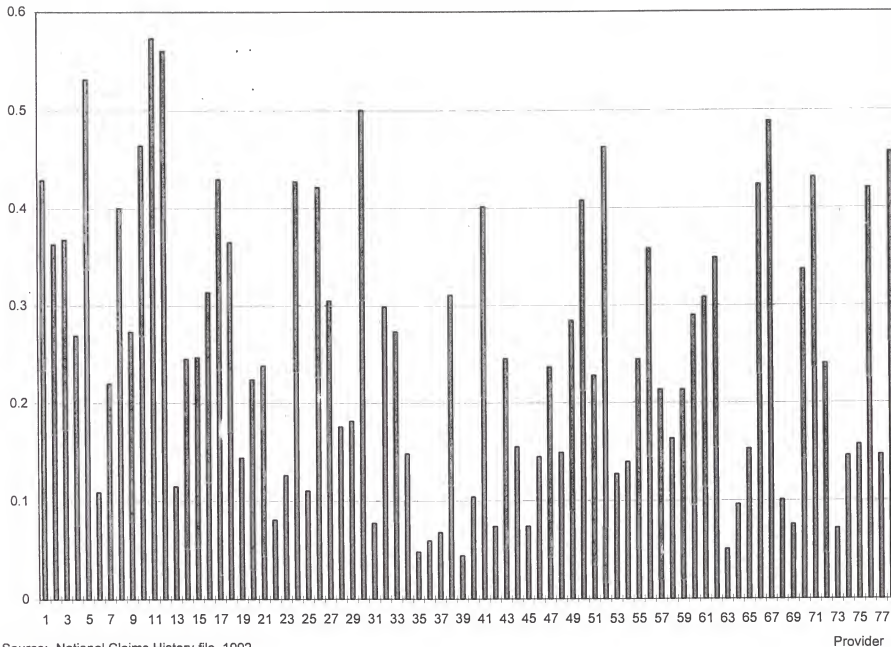
Figure C-1: Percentage Decrease in Patients Seen by Omitting Patients with < \$120 to Provider
(Physician and Supplier Services)



Source: National Claims History file, 1992.

Figure C-2: Patient Capture Ratio, Omitting Patients With < \$120 to Provider
(Physician and Supplier Services)

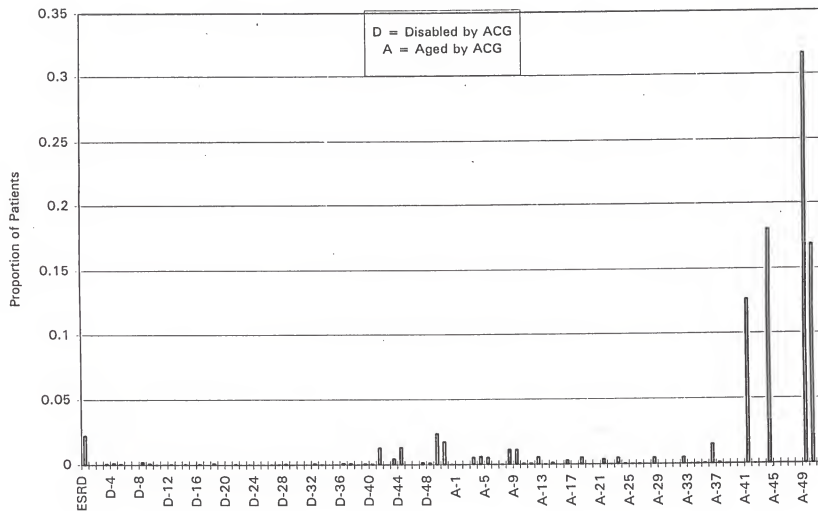
C-21



Source: National Claims History file, 1992.

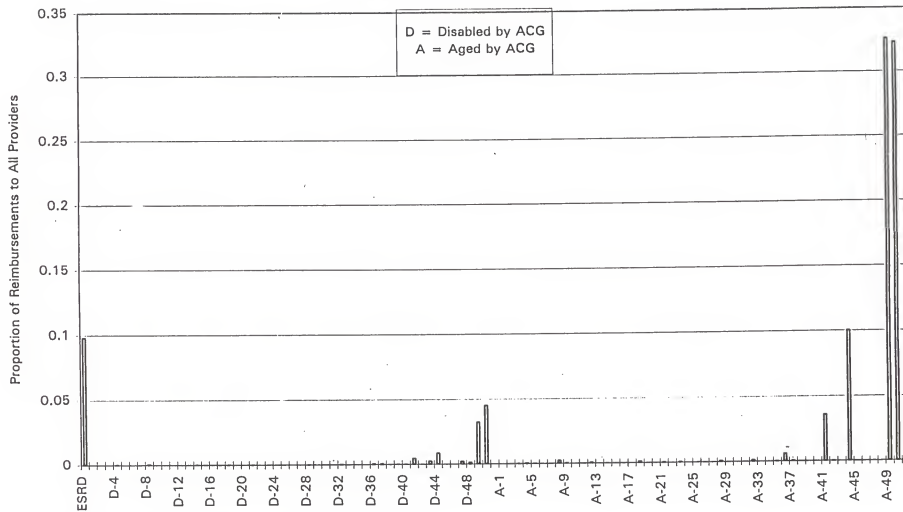
Provider

Figure C-3: Breakdown of One Group's Patients by Health Status



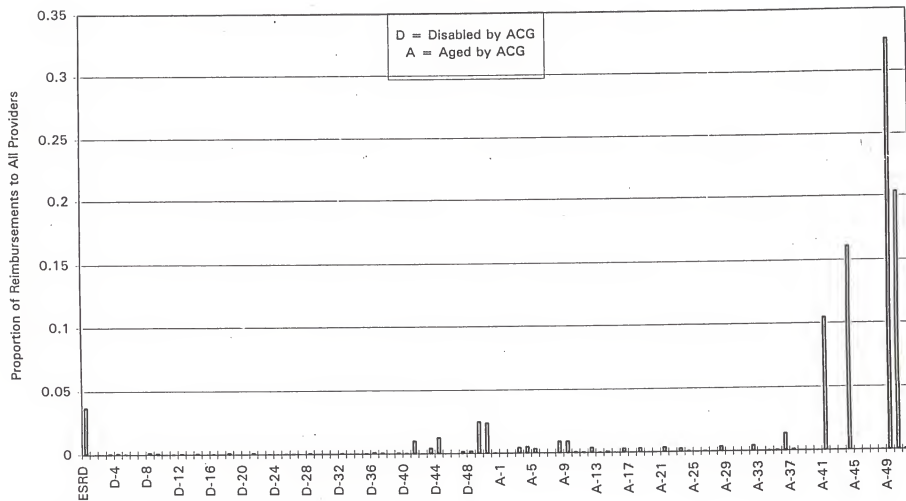
Source: National Claims History file, 1992.

Figure C-4: Breakdown of Reimbursements by Patients' Health Status, for One Group
(Physician and Supplier Services)



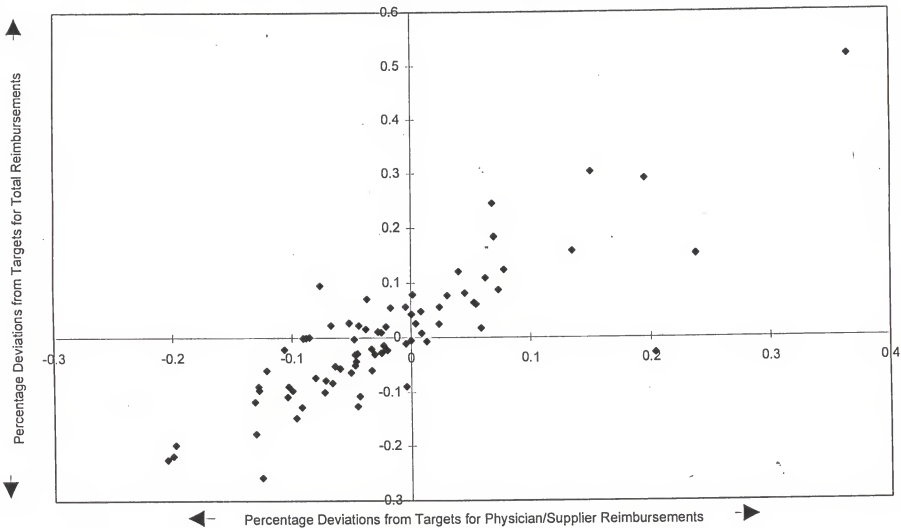
Source: National Claims History file, 1992.

Figure C-5: Breakdown of Reimbursements by Patients' Health Status for One Group
(All Medicare Services)



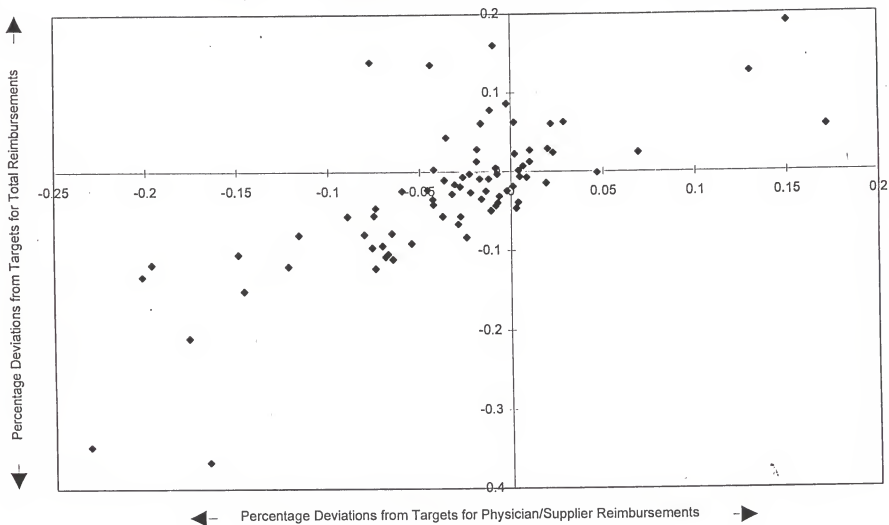
Source: National Claims History file, 1992.

Figure C-6: Deviations from Targets for 78 Providers in 10 Market Areas: 1991 to 1992, Excluding Patients with <\$120 to Provider



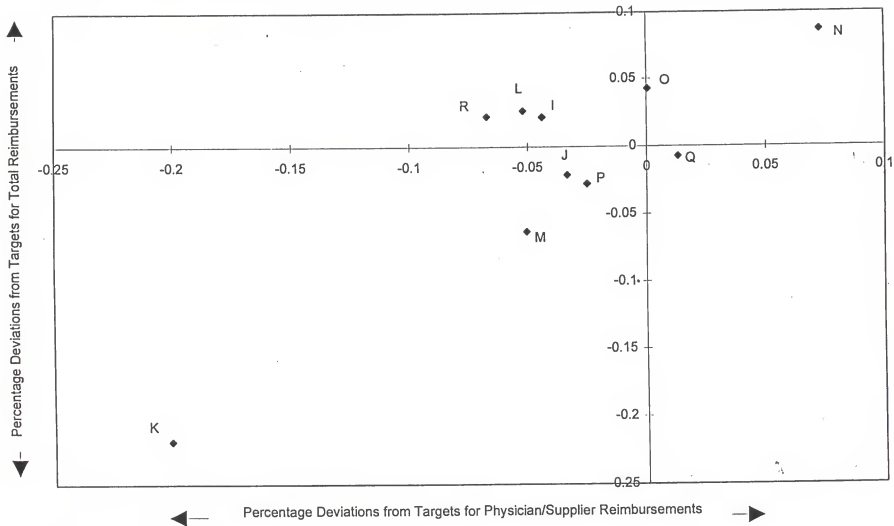
Source: NCH file, 1991 and 1992.

Figure C-7: Deviations from Targets for 78 Providers in 10 Market Areas: 1992 to 1993, Excluding Patients with < \$120 to Provider



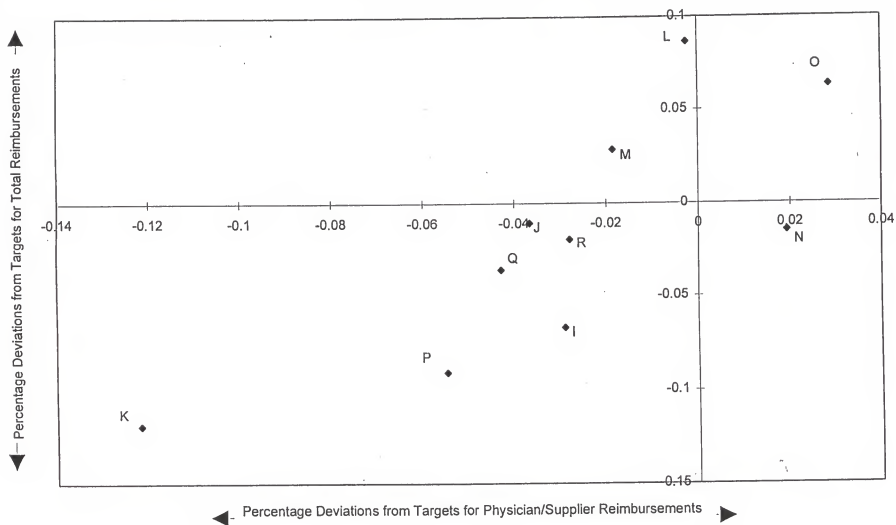
Source: NCH file, 1992 and 1993.

Figure C-8: Deviations from Targets for 10 Selected Providers: 1992 to 1993, Excluding Patients with <\$120 to Provider



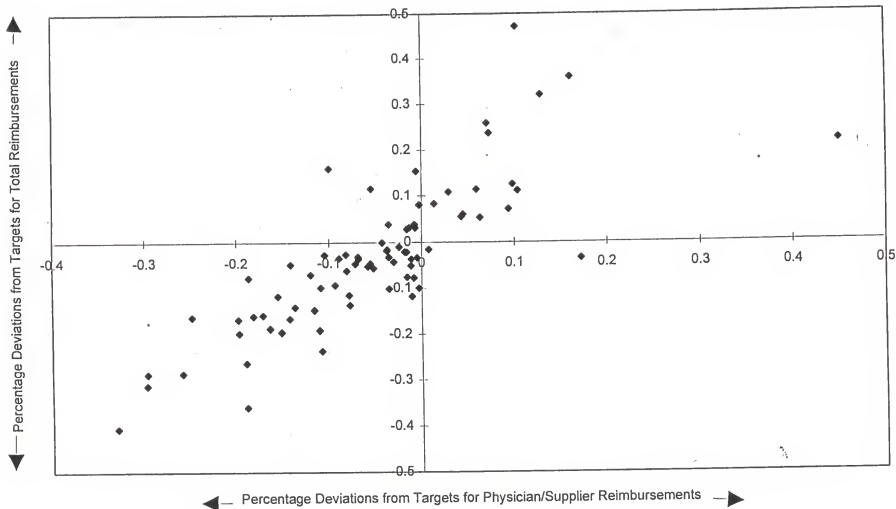
Source: NCH file, 1992 and 1993.

Figure C-9: Deviations from Targets for 10 Selected Providers: 1992 to 1993, Excluding Patients with < \$120 to Provider



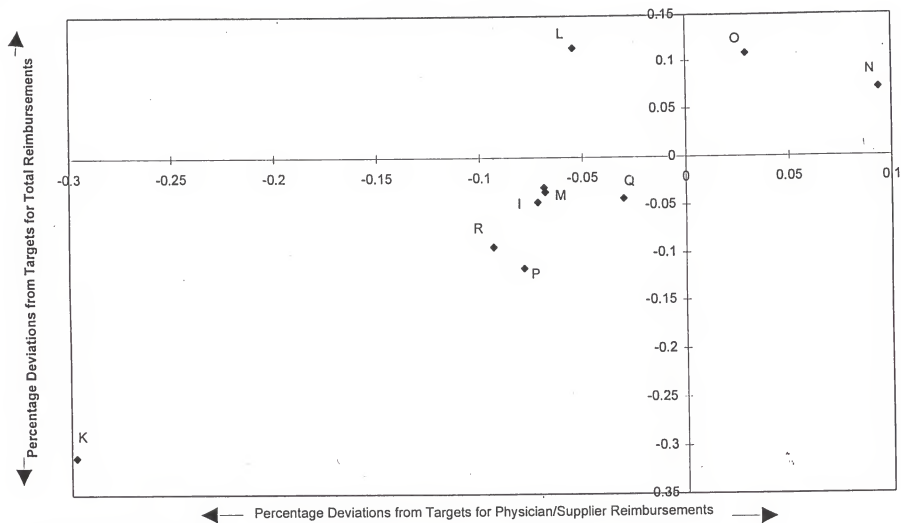
Source: NCH file, 1992 and 1993.

Figure C-10: Deviations from Targets for 10 Selected Providers: 1991 to 1993, Excluding Patients with < \$120 to Provider



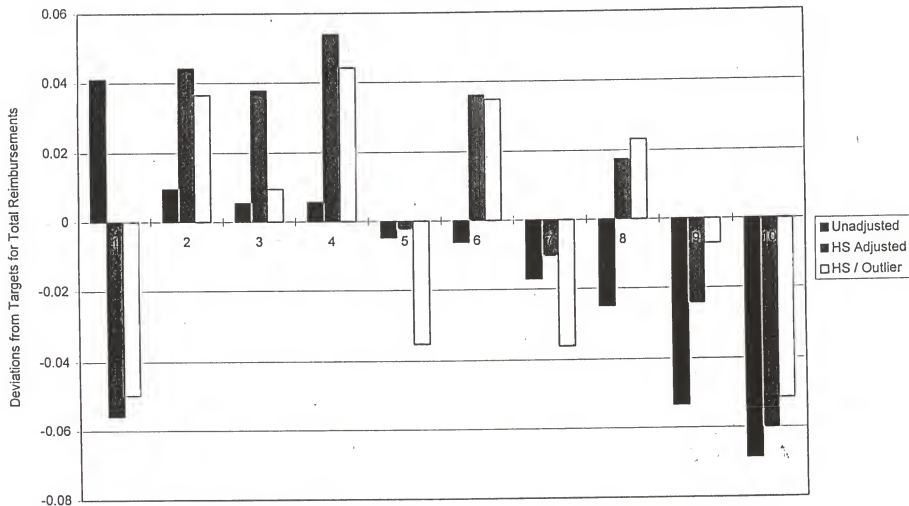
Source: NCH file, 1991 and 1993.

Figure C-11: Deviations from Targets for 10 Selected Providers: 1991 to 1993, Excluding Patients with <\$120 to Provider



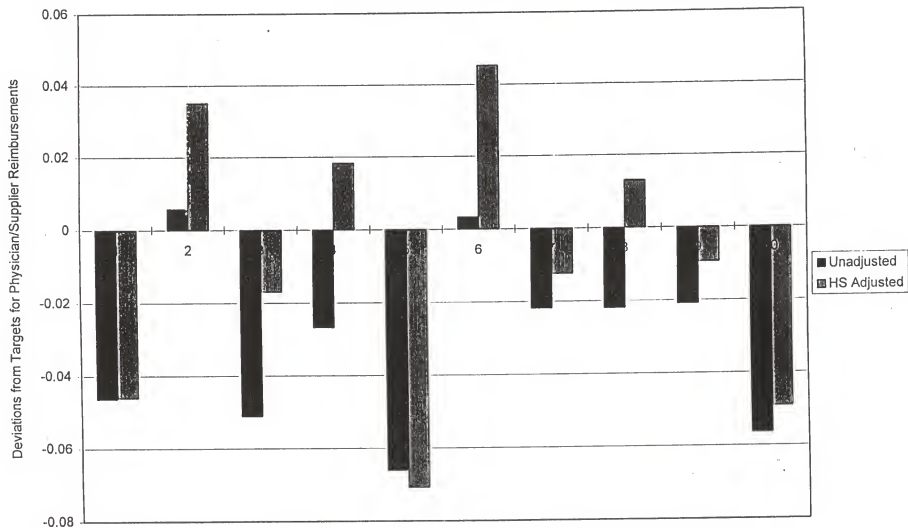
Source: NCH file, 1991 and 1993.

Figure C-12: Deviations from Targets for Total Reimbursements for 10 Providers in 10 Market Areas:
1991 to 1992



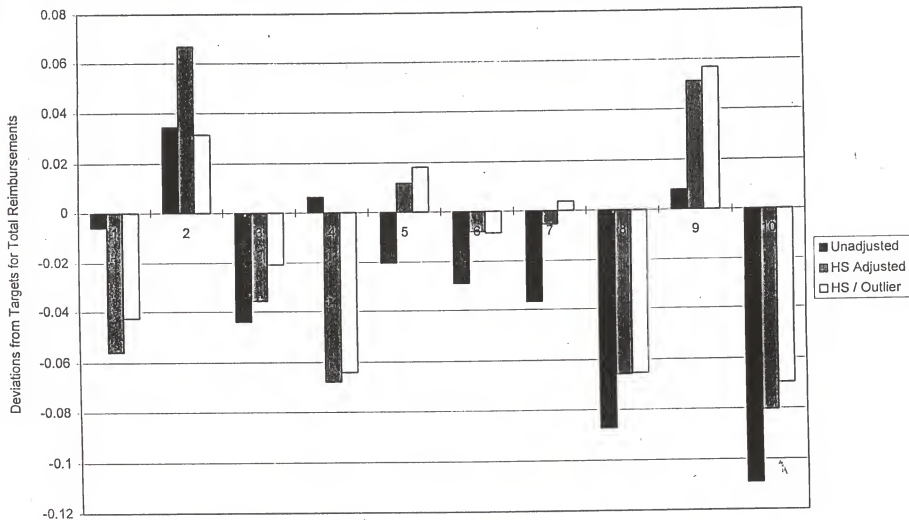
Source: NCH file, 1991 and 1992.

Figure C-13: Deviations from Targets for Physician/Supplier Reimbursements for 10 Providers in 10-Market Areas: 1991 to 1992



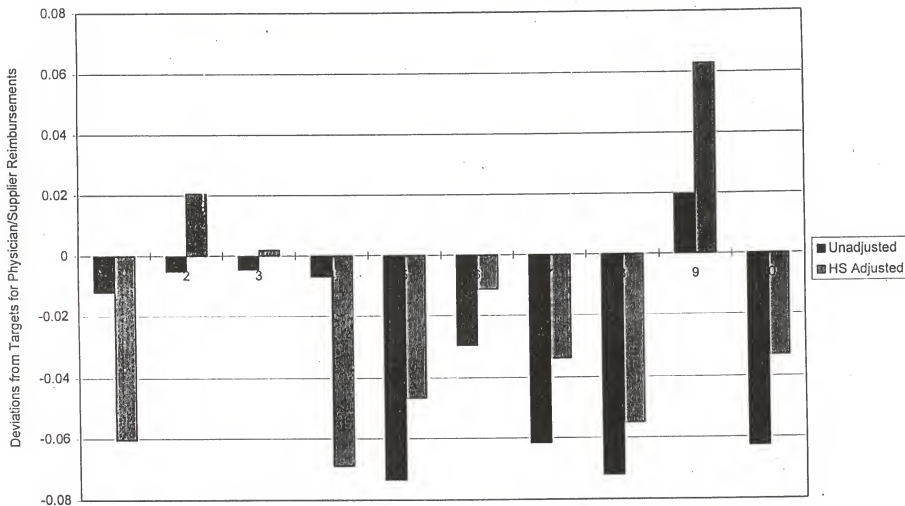
Source: NCH file, 1991 and 1992.

Figure C-14: Deviations from Targets for Total Reimbursements for 10 Market Areas: 1992 to 1993



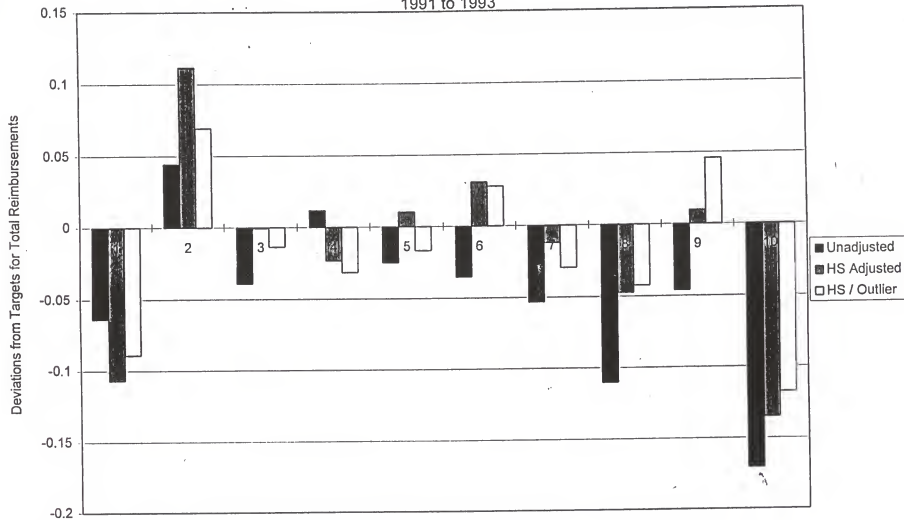
Source: NCH file, 1992 and 1993.

Figure C-15: Deviations from Targets for Physician/Supplier Reimbursements for 10 Providers in 10-Market Areas: 1992 to 1993



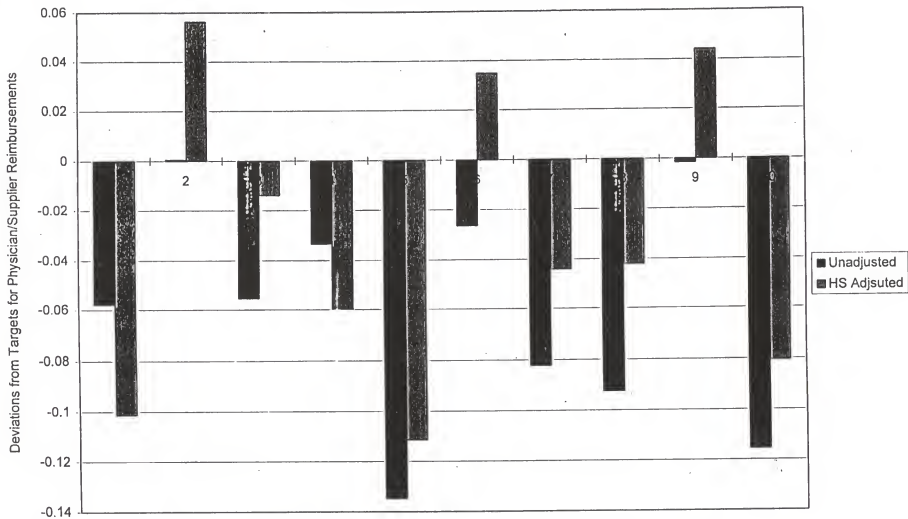
Source: NCH file, 1992 and 1993

Figure C-16: Deviations from Targets for Total Reimbursements for 10 Providers in 10 Market Areas:
1991 to 1993



Source: NCH file, 1991 and 1993.

Figure C-17: Deviations from Targets for Physician/Supplier Reimbursements for 10 Providers in 10 Market Areas: 1991 to 1993



Source: NHC file: 1991 and 1993.

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